NOGAP B.6; VOLUME 2: PHYSICAL DATA COLLECTED IN THE BEAUFORT SEA, MARCH-JUNE 1987

by

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Les établissements des Sciences et Levés océaniques dans les régions et à l'administration centrale ont cessé de publier leurs diverses séries de rapports depuis décembre 1981. Vous trouverez dans l'index des publications du volume 38 du *Journal canadien des sciences halieutiques et aquatiques*, la liste de ces publications ainsi que le dernier numéro paru dans chaque catégorie. La nouvelle série a commencé avec la publication du Rapport n° 1 en janvier 1982.

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Contents

1 INTRODUCTION 1

1.1 Stations 1

1.1.1 Station Nomenclature 1

1.1.2 Station Locations 2

2 INSTRUMENTS AND METHODS 2

2.1 Field Methods 2

2.2 Applied Microsystem Conductivity-Temperature-Depth System 2

2.3 Sea-Tech Transmissometer 8

3 DATA PROCESSING 8

4 DATA VALIDATION 9

5 References 10

6 APPENDIX: DATA TABLES AND PLOTS 11

Abstract

D.M. Macdonald, L.E. Cuypers, D.McCullough, E. Carmack, and R.W. Macdonald, 1988. NOGAP B.6: Volume 2: Physical data collected in the Beaufort Sea, March-June 1987 Can. Data Rep. Hydrogr. Ocean Sci.: 60. 157pp.

As part of the NOGAP B.6 program, with major objectives to determine hydrocarbon pathways and primary productivity of the waters overlying the Beaufort Shelf, we measured water properties (biological, chemical and physical) on a transect out from Tuktoyaktuk to the shelf break. These measurements were made from early spring (March) through to breakup (June). We report here the supporting physical oceanographic data, including temperature, salinity, light transmission and attenuation, density (γ[S,t,0]), departure from freezing point, and dynamic height. Additional physical measurements were made in the near-shore zone to investigate the Mackenzie plume structure under ice; these data are also included here.

Key words: Arctic, Beaufort Sea, density, oceanography, salinity, temperature, transmissivity

Résumé

D.M. Macdonald, L.E. Cuypers, D.McCullough, E. Carmack, and R.W. Macdonald, 1988. NOGAP B.6: Volume 2: Physical data collected in the Beaufort Sea, March-June 1987. Can. Data Rep. Hydrogr. Ocean Sci.: 60. 157pp

Dans le cadre du programme NOGAP B.6, portant principalement sur la detérmination des trajectoires des hydrocarbures et de la production primaire des eaux au-dessus du plateau continental Beaufort, nous avons mesuré les propriétés de l'eau (biologiques, chimiques, physiques) sur une ligne étendant de Tuktoyaktuk jusqu'à la dénivellation du plateau continental. Ces mesures ont été prises du début du printemps (mars 1987) à la débâcle des glaces (juin 1987). Nous reportons ici les données sur l'océanographie physique, y compris la temperature, la salinité, la transmission et l'atténuation de lumière, la densité (γ[S,t,0]), la déviation du point de congélation, et l'hauteur dynamique. En outre, des mesures physiques ont été prises près de la côte afin d'examiner la structure du panache du Mackenzie sous la glace. Ces données ont été ajoutées.

Mots-clé: Artique, Mer de Beaufort, densité, oceanographie, salinité, température, transmission.

Acknowledgements

This work was funded by **Indian and Northern Affairs, Canada**, as part of the **Northern Oil and Gas Action Program**. We are extremely grateful for the expert flying of H. Hanlon, and Ray Bolton. Thanks are due Energy, Mines and Resources, Polar Continental Shelf Project in Tuktoyaktuk, N.W.T. for accommodations and technical support, without which work such as this would be hard to do. S. Thomson assisted with advice on report layout. A. Ages translated the abstract into French. The manuscript was prepared using LaTeX.

1 INTRODUCTION

As part of a major inter-disciplinary study, (NOGAP-B.6) to measure the transport and fate of hydrocarbons over the Beaufort Shelf and the primary productivity of these coastal waters, we conducted a spring sampling program. This was operated out of Tuktoyaktuk, Polar Continental Shelf Project, and used fixed-wing and rotary-wing support vehicles to carry out sampling. To complete the field program, a cruise was carried out on the C.S.S. *John P. Tully* in the summer of 1987.

The primary logistic goals for the work done by Institute of Ocean Sciences staff in 1987 were as follows:

- Make time series measurements from late winter through to late summer for physical, chemical and biological properties on a transect extending from Kugmallit Bay (Mackenzie River) to the Shelf edge. This also would include short-term sediment trap moorings and pumps.
- Deploy and recover moorings at the shelf edge to measure currents, light transmissivity, and sedimentation throughout the entire season (March 87 - March 88).
- Make measurements to delineate plume structure in the near-shore zone.

This document reports physical oceanographic data collected using a conductivity-temperature-transmissivity-depth (CTTD) probe during the spring ice-work. Companion reports providing the chemical, biological, sedimentation, and current records are in preparation. NOGAP B.6 data reports now available are listed here on the back cover.

1.1 Stations

1.1.1 Station Nomenclature

Each station has been given a two-part designation; xP-yQ, where x and y are numbers and P and Q are letters. The alpha-numeric *before* the hyphen refers to location; this is simply a number for planned stations on the main transect(s) across the shelf and a number followed by a letter for stations which were added on site (to trace interesting water features or substituted due to inability to land at the chosen site). For a few stations, the letter precedes the number; these are either the 4 'SS' stations at which we placed sequential trap/current meter moorings or near-shore stations which were added to the program in the field to delineate the plume structure (mostly CTTD transects). The alpha-numeric *after* the hyphen refers to time period (see itemized list below) and sequential visit to a station within time period (letter). An example of a typical station number would be 5A-2B; this refers to station 5A (close to station 5), the second sampling period (late April), and the third time within that period that we visited the station. Dates and locations for all stations are given in the Table headers. Data collection periods for the 1987 NOGAP B.6 arctic program are listed below, with **bold** font used for the physical data presented in this report.

1. **March 30 - April 8 (ice work)**
2. **April 23 - April 28 (ice work)**
3. **May 23 - May 26 (ice work)**
4. **June 2 - July 30 (ice work (CTD only), Mackenzie River sampling)**
5. July 31 - August 30 (C.S.S. *J.P. Tully*, shore peat sampling)
6. Aug 31 - Sept 9 (C.S.S. *J.P. Tully*)

1.1.2 Station Locations

Figures 1, 2, 3, 4, and 5 show the station locations for the 4 sampling periods listed above. Since sampling was done from the sea ice, exact sites were dictated by ice conditions; where the aircraft could land and where a hole could be augered relatively simply. The main station locations were predetermined using hydrographic charts, and modified in the field where required. For each site, the pilot would navigate to the chosen area using a (Global Navigation) GNS 500 VLF/Omega positioning system. Past experience shows that these avionics can place the aircraft inside a radius of 1000m from the true position. The avionics were shut down with the aircraft and re-initialized after start- up when sampling was complete.

2 INSTRUMENTS AND METHODS

2.1 Field Methods

Once the aircraft had landed and shut down at the chosen station, a 25 cm hole was augered in a flat spot on the ice with slush ice being carefully removed from its surface. The CTTD was initialized inside the aircraft by connecting it to a Data General computer, selecting operating mode (sampling interval controlled by time or pressure), sampling increment, and filling in the necessary 'header' information. After initializing, the CTTD was disconnected from the computer and lowered into the water; generally the transit from aircraft cabin to water was made as short as possible to prevent icing. The probes were lowered to near the bottom of the ice hole where they were allowed to equilibrate for about a minute, and then the CTTD was lowered at a steady rate of about 0.5 m/s on a hand line. (Since the instrument records internally with solid state memory it requires no external connections.)

The depth of the ice (and the water column where not too deep) was measured with a tape before lowering the instrument; we attempted to get as close to the bottom as possible. During the spring program, ice thickness was found to be about 1.6 $\pm$0.4 m. (For a few locations where ice had formed recently we found the ice to be only 30 cm deep.) On breaching the ice, the hole filled with water to just below the ice surface in response to hydrostatic pressure. This top 1-2 m of water did not exist until the hole was drilled, and no importance is given to its physical properties here; the hydrostatic pressure is, however, reflected in the depth record.

Following the cast, the CTTD was returned to the aircraft where the data were dumped to the Data General computer, and various parameters were calculated and plotted on a liquid crystal display. If the record looked acceptable, it was stored to disk for later processing; it could be recalled later if required at another station. The instrument probes were kept from freezing in the aircraft by using a small hair dryer, and filling the conductivity cell with alcohol.

2.2 Applied Microsystem Conductivity-Temperature-Depth System

We used an AML STD-12 (serial number 405) system with solid state memory. The instrument was factory calibrated before going into the field.

Software written at the Institute of Ocean Sciences (D. Macdonald) was used to program and operate the CTD in the field. Sampling rate (could be set to a function of time or pressure) depended on a selected pressure increment; this was chosen based on the depth of the station and the memory capacity of the instrument. The operating specifications of the instrument are listed in Table 1.

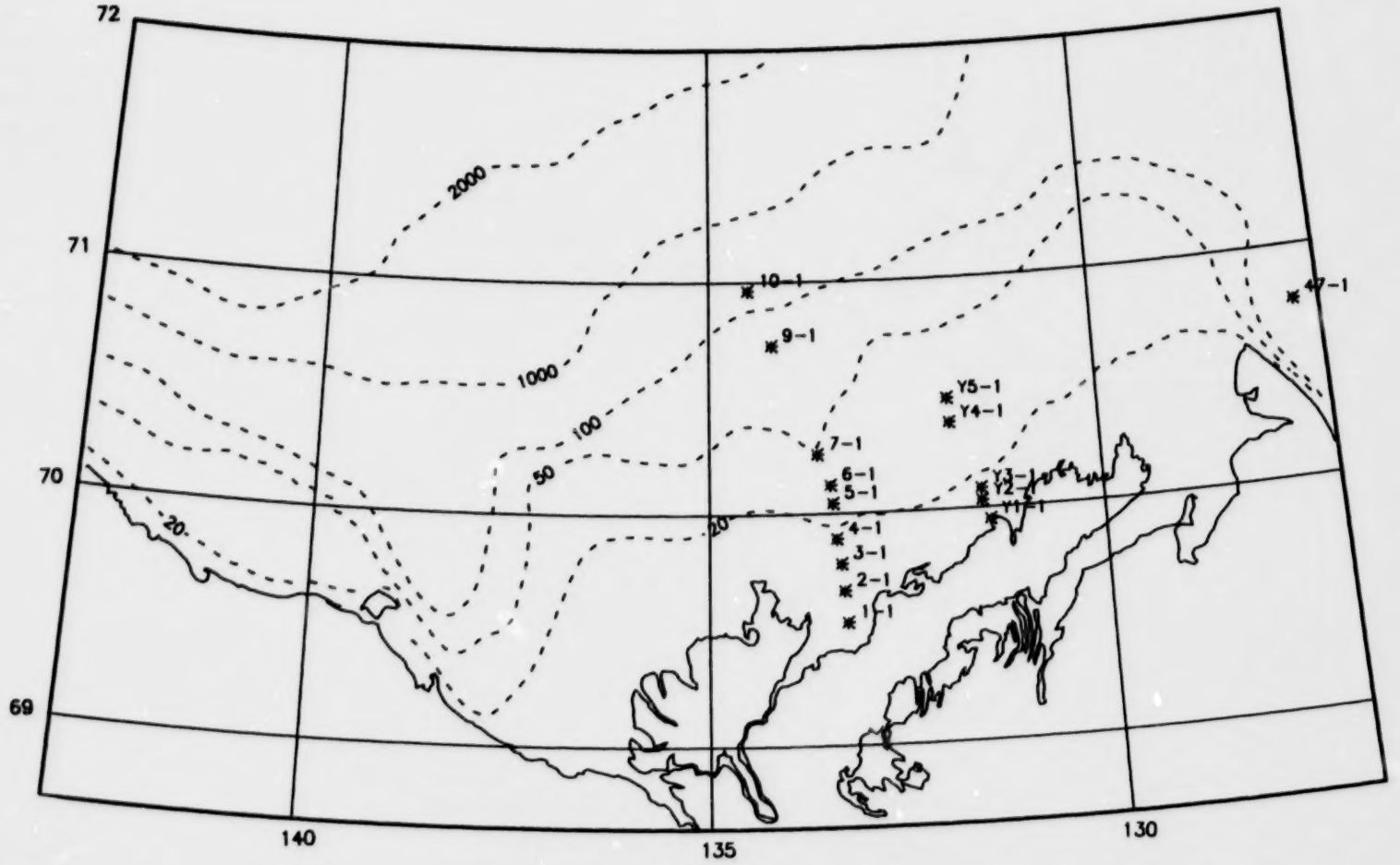


Figure 1: CTTD Ice Stations March 30-April 8, 1987

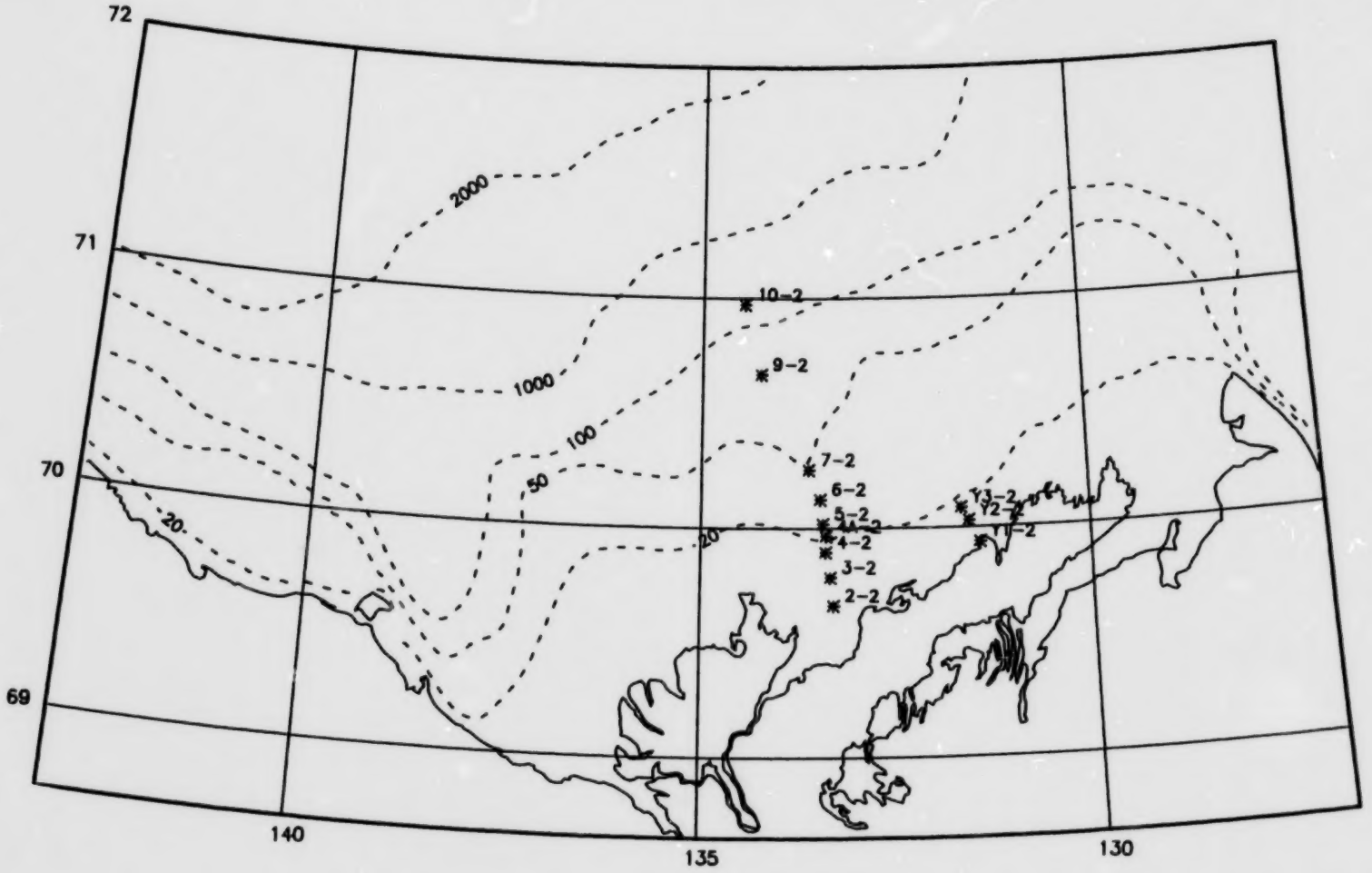


Figure 2: CTTD Ice Stations April 23-28, 1987

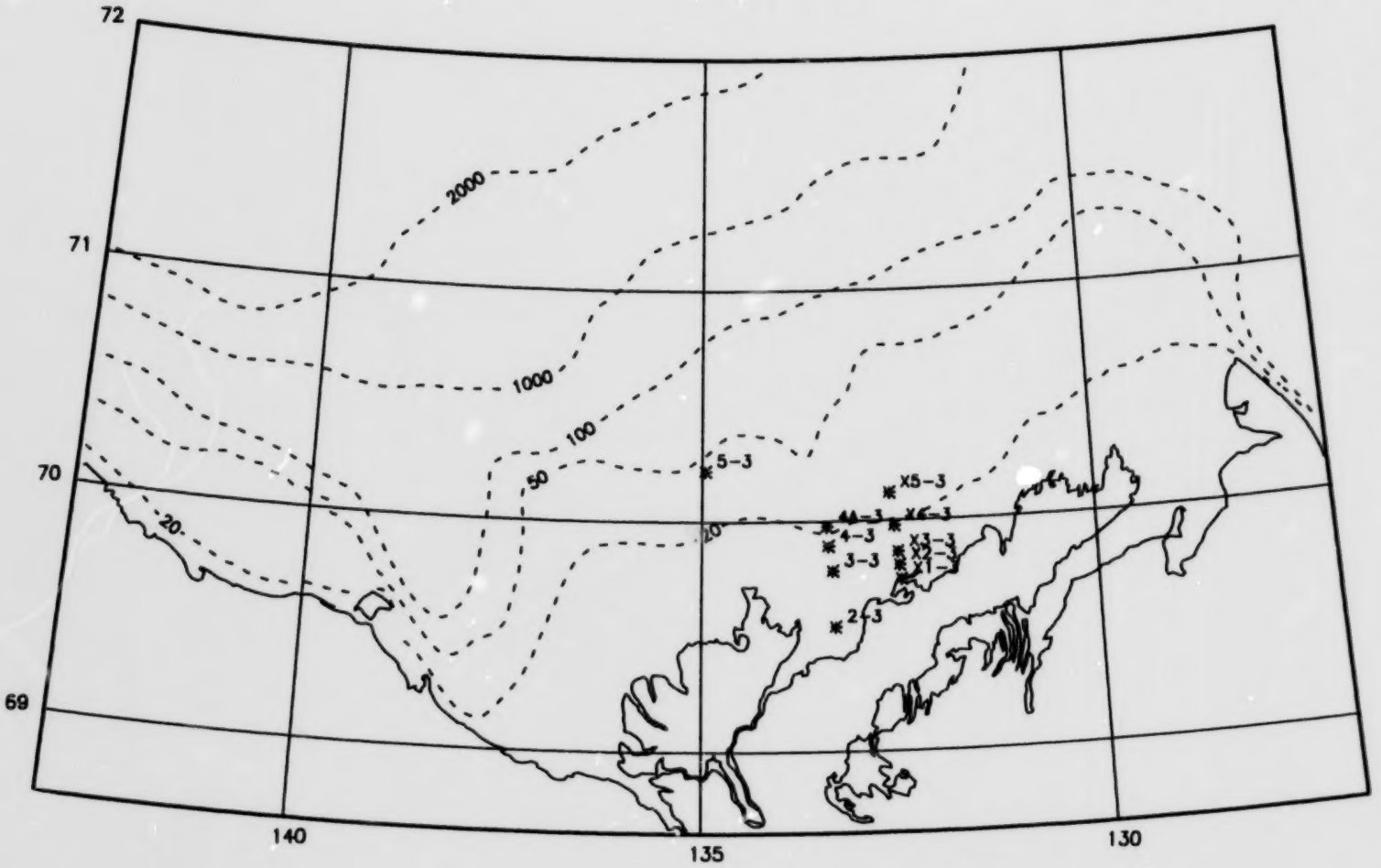


Figure 3: CTTD Ice Stations May 23-26, 1987

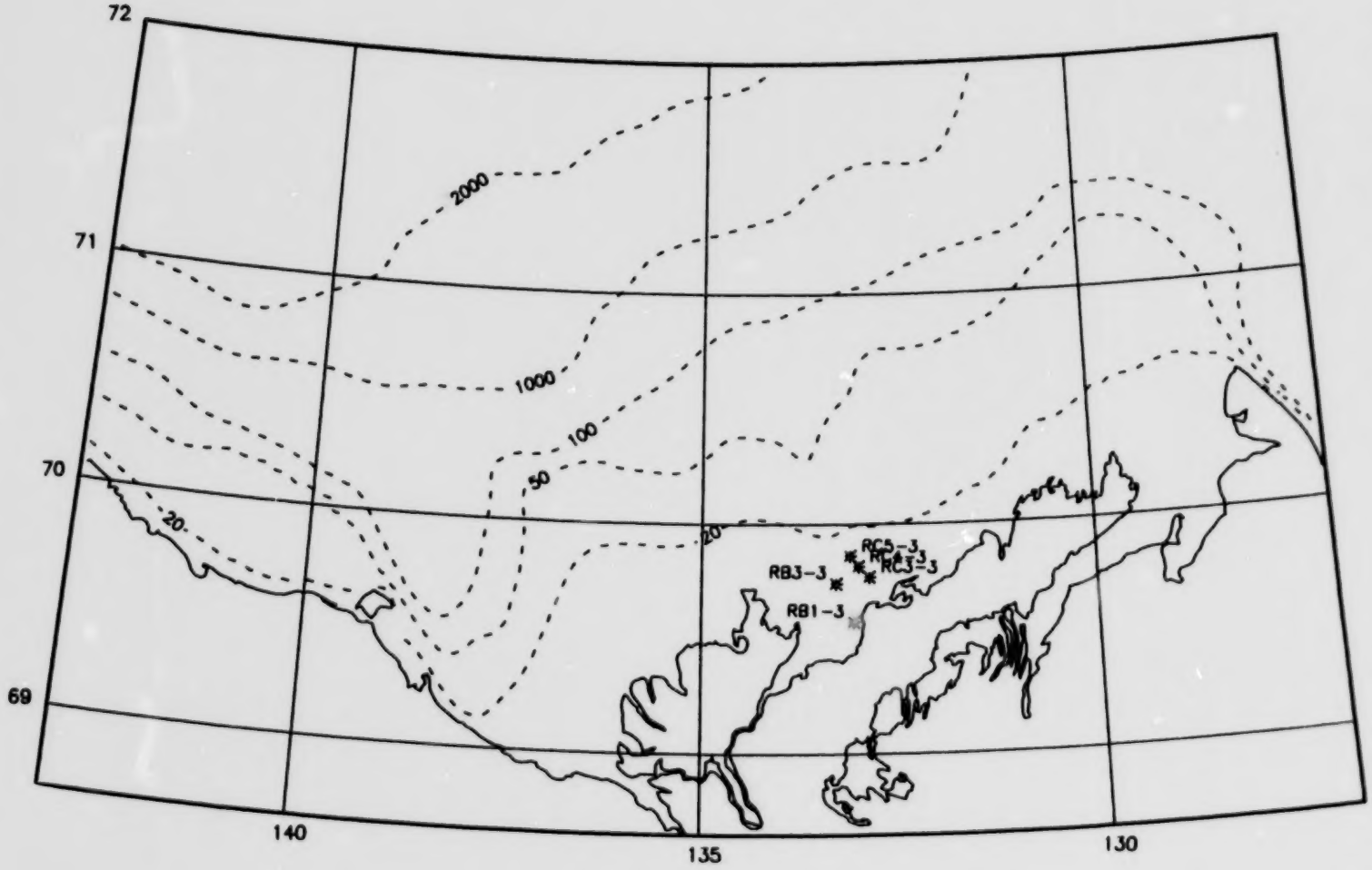


Figure 4: CTTD Ice Stations May 23-26, 1987

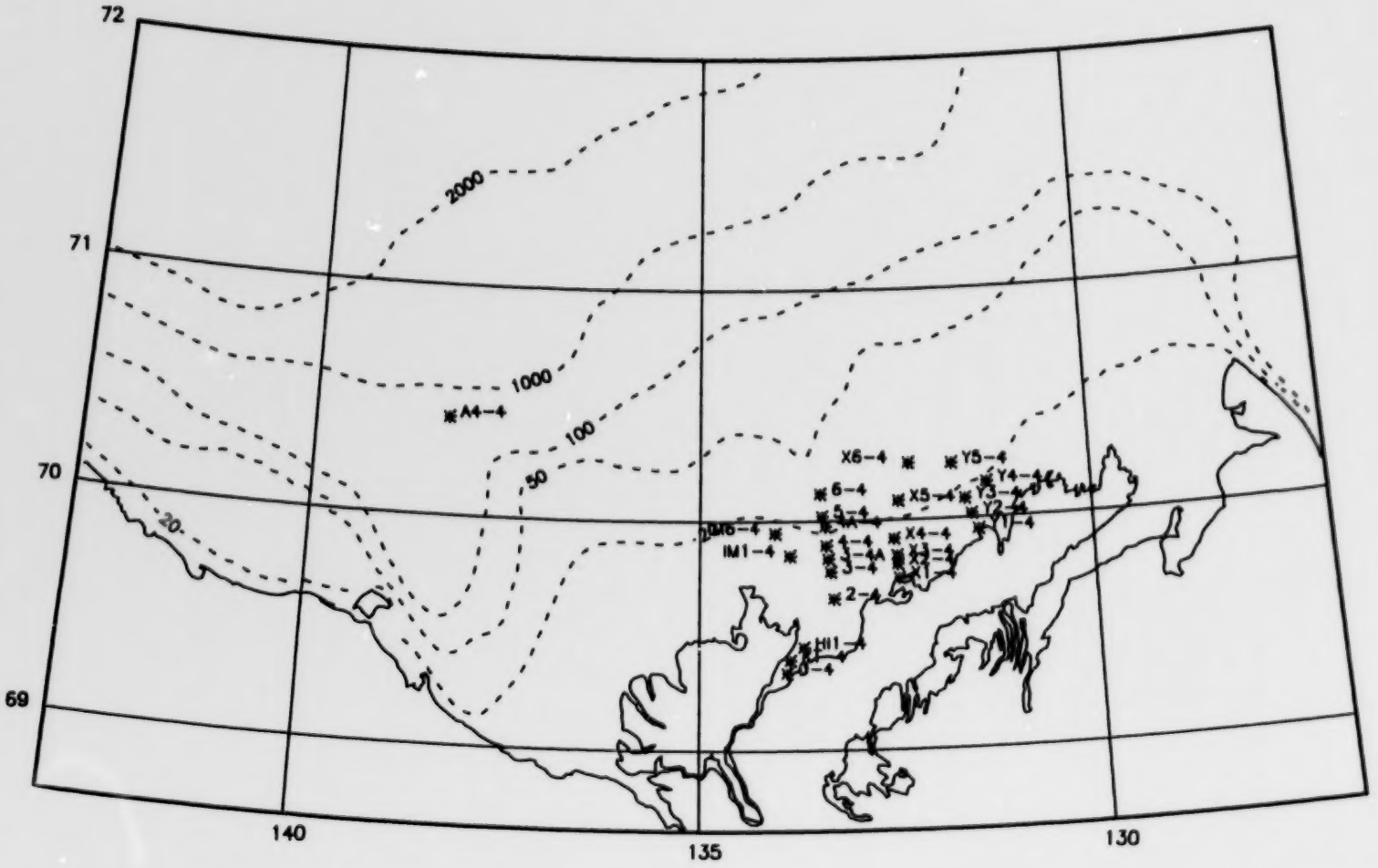


Figure 5: CTTD Ice Stations June 2-4, 1987

Table 1: AML CTD Specifications

Measurement	Precision	Accuracy
Salinity (psu)	±0.01	0.15 ±0.01 (biased low)
Temperature (°C)	±0.01	±0.01
Pressure (decibar)	±0.05	±0.05

Table 2: Transmissometer Configuration

Water Path Length	25 cm
Beam Diameter	15 mm
Transmitted Beam Collimation	< 5 milliradians
Receiver Acceptance Angle (in water)	< 18 milliradians
Light Source, Wavelength	LED, 660 nm
Range (in water)	0 - 100% (0-5 VDC)
Accuracy	±0.5%
Linearity	±0.1%
Temperature stability	±0.3% (0-25°C)

2.3 Sea-Tech Transmissometer

The AML probe was fitted with a Sea-Tech beam transmissometer (SN 139) which records percent light transmission over a given path length [*Bartz et al.*; 1978]. Its specifications are listed in Table 2.

For a well collimated monochromatic light in a scattering or absorbing medium, the light lost in transit is given by;

$$\%T/100 = e^{-cr}$$

where c is attenuation coefficient (1/m) and r is the path length (25 cm). Accuracy for transmissometers is best near the region $cr = 1$. Both the percent transmission and the calculated attenuation coefficient are reported in the accompanying data tables.

3 DATA PROCESSING

The files were cleaned if necessary, and despiked. Cleaning involved removal of portions of the cast at the top and/or bottom where the probe was sitting still at the surface or resting on the bottom. The up-cast was deleted. Despiking involved the removal of obvious errors within the cast data.

The data were reduced by generating files with data at 1 m intervals. In the field the sampling interval varied from 0.2 to 0.5 decibar depending on the depth of the station and the memory capacity of the CTTD. Most casts had a sampling interval of 0.2 decibar.

Salinity is reported in the practical salinity unit [*Lewis and Perkin*; 1978]. Other derived quantities were calculated such as density (γ[S,t,0]), the departure from freezing point, speed of sound, and dynamic height [*Fofonoff and Millard*; 1983, *UNESCO*; 1987].

4 DATA VALIDATION

Bottles were collected and analyzed for salinity as part of the chemical/biological program. Although these samples were not collected at precisely the same time as the CTTD cast, they were often taken through the same ice-hole and. where gradients in water properties were low, these afforded a chance to intercompare results between the two independent methods. The property difference $\Delta = Sal_{bottle} - Sal_{CTTD}$ was calculated for each point with the following results:

$$\bar{\Delta}_{Sal} \pm s_{\Delta}(n) = 0.146 \pm 0.055(32)$$

Units for salinity are in parts per thousand; s refers to standard deviation, and n to the number of points at which Δ could be confidently calculated. These calculations imply a salinity offset in the CTTD of about 0.15 parts per thousand low relative to the bottle data, the latter being referenced to IAPSO water. Since such an offset is outside the performance capabilities of the AML (Table 1) it implies a miscalibration. A plot of Δ_{Sal} versus salinity for the above intercomparison is given in Figure 6. For the range in salinity where we could make the comparison (29.5 - 33.0 ppt) the salinity offset appears constant.

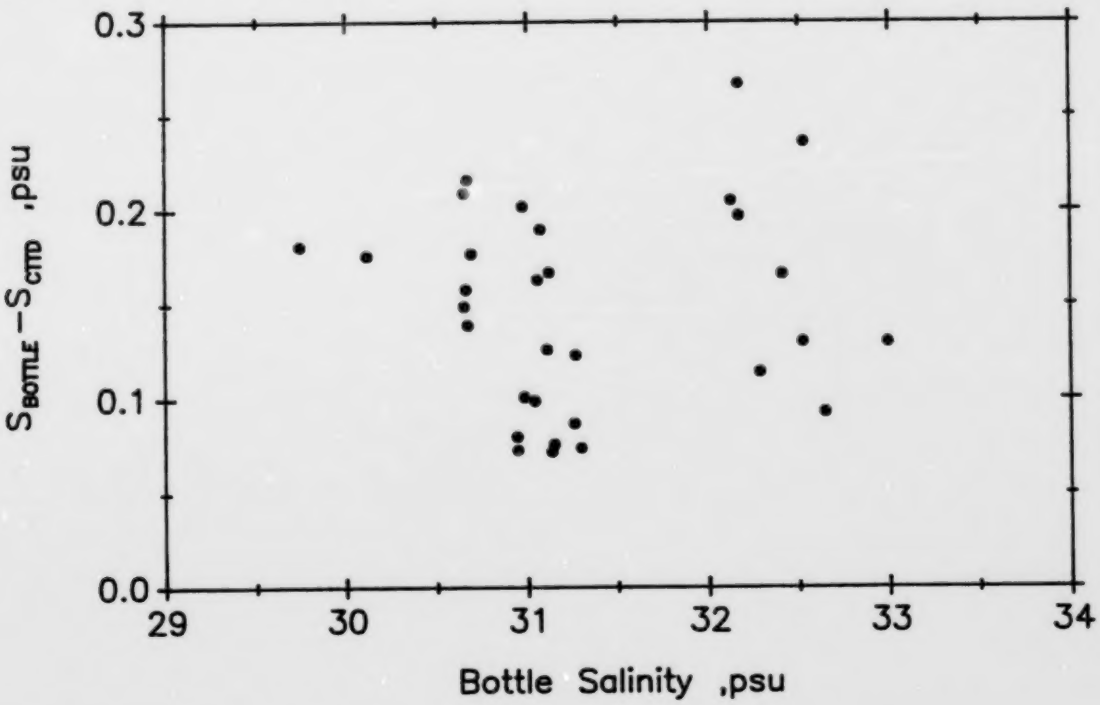


Figure 6: Intercomparison between bottle and the CTD salinities

The bottle samples were not accompanied with reversing thermometers therefore it is not possible to do a similar intercalibration with temperature. For this, one must rely on independent checks such as freezing temperature, which can be calculated directly from salinity, and T-S property plots. Examination of $T\text{-}T_f$ in the tables (see the Appendix) shows that temperature often approached freezing (± 0.01 C°); in only a few cases did it go more than 0.04 C° below freezing, and in almost all cases this occurred at a steep salinity gradient where the temperature probe may have responded to change faster than the salinity cell. In three cases (Stations 3-1, 4-1, and 10-1)

the surface temperature was measured to be below freezing: these are probably artifacts since we were working in very cold air temperatures, and the instrument may have still been adjusting from its immersion in air. The data appear to be consistent with an accuracy in temperature of ± 0.01 as given in the instrument specifications; precision based on regions in the water column where temperature gradients are low is ≤ 0.01 C°. An examination of the T-S characteristics for deep water (salinity ≥ 33) show no temperature discrepancies between our data and those collected in previous years.

The pressure sensor on the AML CTD changes by +0.06 db °C change in temperature. Depth reading was checked against a tape measure at several stations and showed no bias.

The transmissometer data often show low transmissivity on passing through a sharp pycnocline. Independent sampling to identify this 'turbid' layer did not reveal any anomalously particle-rich water. We conclude that the apparent drop in transmissivity is due almost entirely to an optical effect caused by refractive index change as the optical path passed through the salinity gradient. A second problem with the transmissometer was the tendency for the windows to ice-up due to the cold or trap slush ice as they passed through the ice-hole (the transmissometer was mounted vertically to pass through the hole). This has probably caused erroneously low transmissivity readings at some stations. We include the transmissivity data here in spite of the above difficulties because the shape of the profile does provide information; absolute values should be viewed with extreme caution.

5 References

Bartz, R., J.R.V. Zanefeld, and H. Pak, 1978. A transmissometer for profiling and moored observations in water. *SPIE Ocean Optics*, **160**: 102-108.

Fofonoff, N.P., and R.C. Millard, 1983. Algorithms for computation of fundamental properties of seawater. *UNESCO Technical Papers on Marine Science*, **44**, 53pp

Lewis, E.L., and R.G. Perkin, 1978. The Practical Salinity Scale 1978: conversion of existing data. *Deep Sea Res.*, **28 A**, 307-328

UNESCO, 1987. International Oceanographic Tables, Vol. 4: Properties derived from the International Equation of State of Seawater, 1980. *UNESCO technical papers in marine science*, **40**, various pagings.

6 APPENDIX; DATA TABLES AND PLOTS

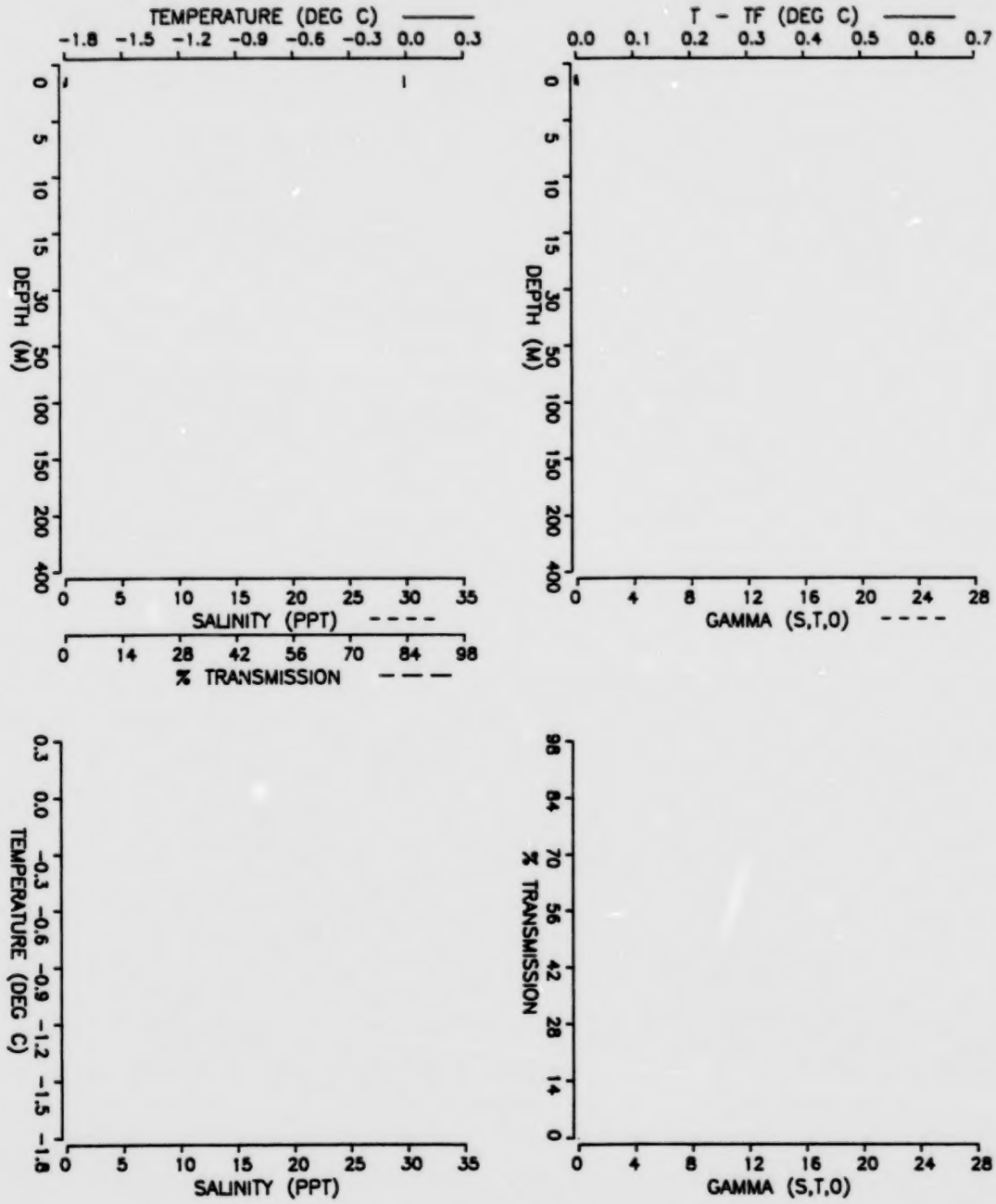
Units and abbreviations used in the computer listings which are included in the following appendix are summarized below.

Measurement	Abbreviation	Units
DEPTH	DEPTH	METRES (M)
TEMPERATURE	TEMP	DEGREES CENTIGRADE (DEG C)
SALINITY	SALN	PARTS PER THOUSAND (PPT)
TRANSMISSION	TRNS	PERCENT (%)
LIGHT ATTENUATION	ATTN	1/METRE (1/M)
DENSITY†	SIGT	KILOGRAM/METRE^3 (KG/M^3)
DEPARTURE FROM FREEZING	T-Tf	CENTIGRADE DEGREES (DEG C)
DYNAMIC HEIGHT ANOMALY	DYN HT	METRES (M)

† The quantity reported for density is actually $\gamma(S,t,0)$ [UNESCO, 1987].

STATION	LAT	LONG	DATE
1-1	69 31.8 N	133 17.6 W	23:15 MDT ON 05/04/ 87

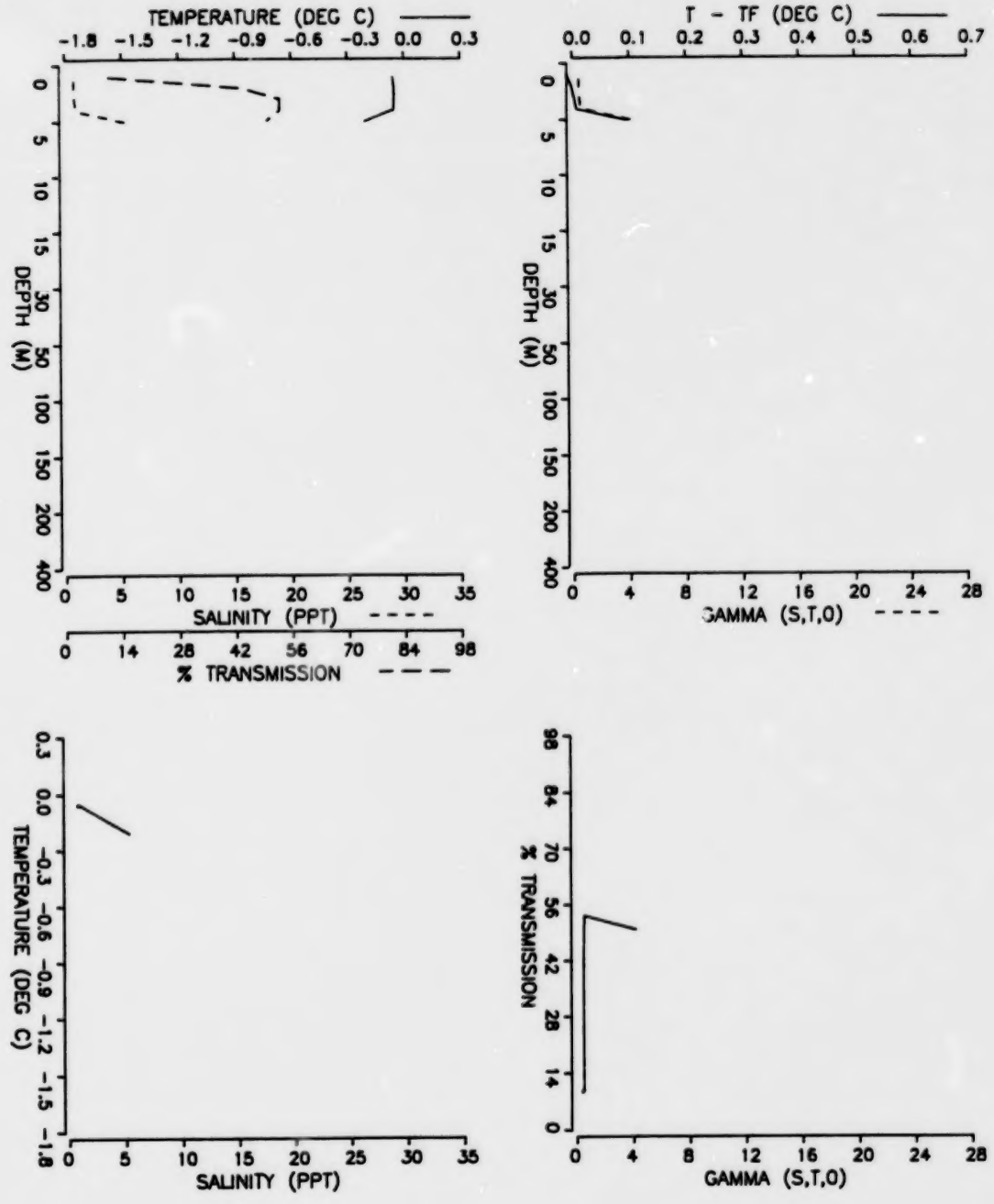
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.01	0.16	0.0	36.84	-0.02	0.00	0.28
2.0	-0.01	0.16	0.0	36.84	-0.03	0.00	0.55



STATION 1-1 CAST # 87010 DATE : 23:15 MDT ON 05/04/ 87
WATER DEPTH 2.5 M ICE THICKNESS 1.5 M INSTRUMENT : APPL MICROSYS CTD
LAT : 69 31.80 N LONG : 133 17.60 W

STATION	LAT	LONG		DATE
2-1	69 40.0 N	133 19.3 W	13:59 MDT ON	05 04 87

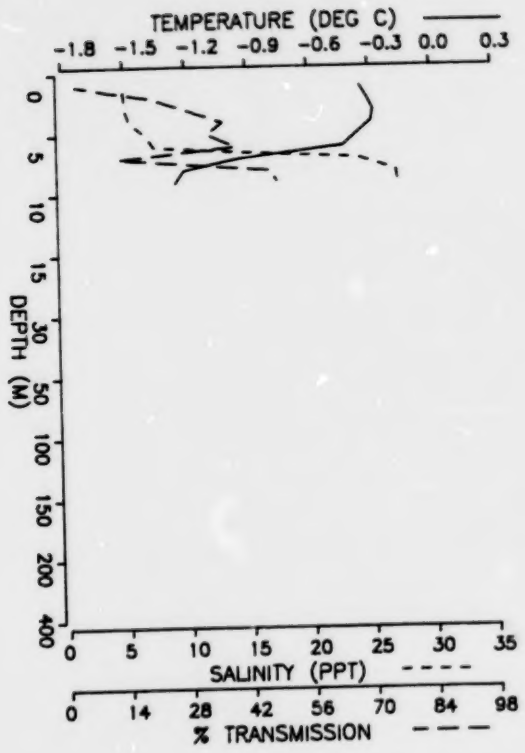
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.06	0.81	9.8	9.30	0.50	-0.01	0.27
2.0	-0.05	0.81	43.7	3.31	0.50	0.00	0.54
3.0	-0.05	0.87	53.3	2.51	0.56	0.00	0.81
4.0	-0.05	0.96	53.4	2.51	0.63	0.01	1.08
5.0	-0.20	5.46	49.9	2.78	4.27	0.10	1.33

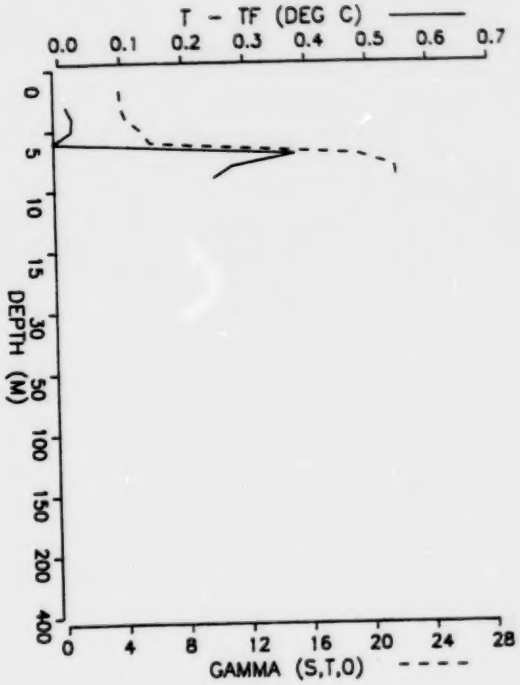


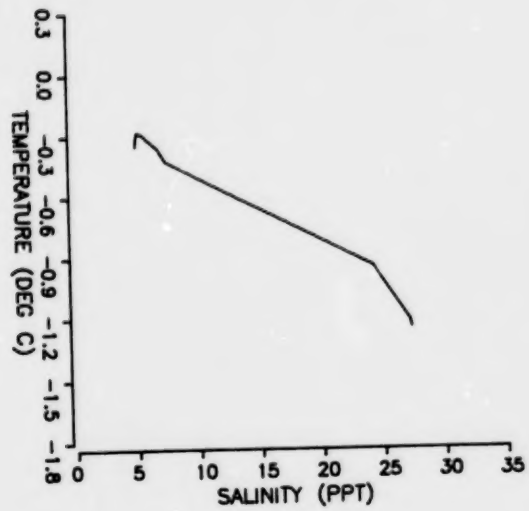
STATION 2-1 CAST # 87004 DATE : 13:59 MDT ON 05/04/ 87
WATER DEPTH 4.2 M ICE THICKNESS 1.8 M INSTRUMENT : APPL MICROSYS CTD
LAT : 69 40.00 N LONG : 133 19.30 W

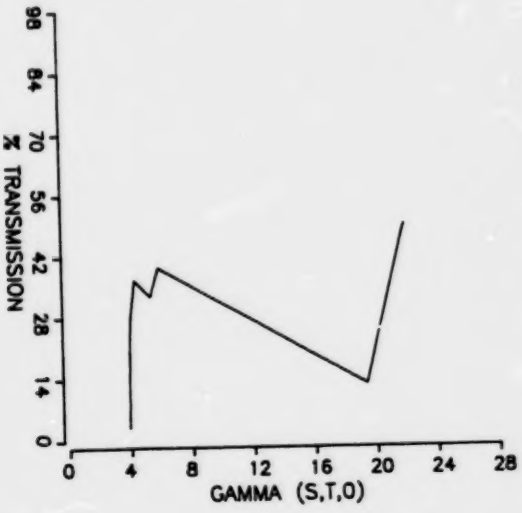
STATION	LAT	LONG	DATE
3-1	69 47.0 N	133 21.1 W	15:00 MDT ON 05/04/ 87

DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.34	5.05	3.3	13.64	3.93	-0.06	0.24
2.0	-0.31	5.08	20.3	6.37	3.97	-0.03	0.47
3.0	-0.27	5.19	28.6	5.00	4.05	0.01	0.71
4.0	-0.29	5.55	36.7	4.01	4.35	0.02	0.94
5.0	-0.36	6.82	33.1	4.43	5.37	0.02	1.17
6.0	-0.42	7.49	39.6	3.70	5.91	-0.01	1.39
7.0	-0.94	24.22	12.8	8.22	19.42	0.38	1.54
8.0	-1.21	27.19	47.6	2.97	21.83	0.28	1.61
9.0	-1.25	27.36	49.2	2.83	21.96	0.25	1.67





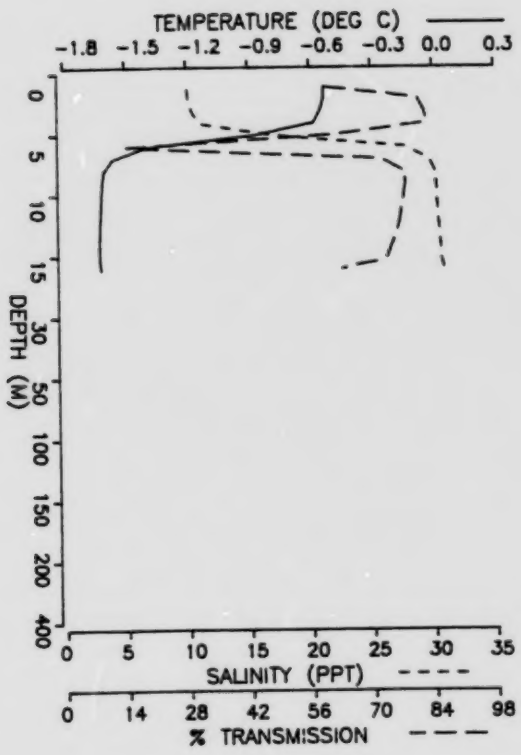


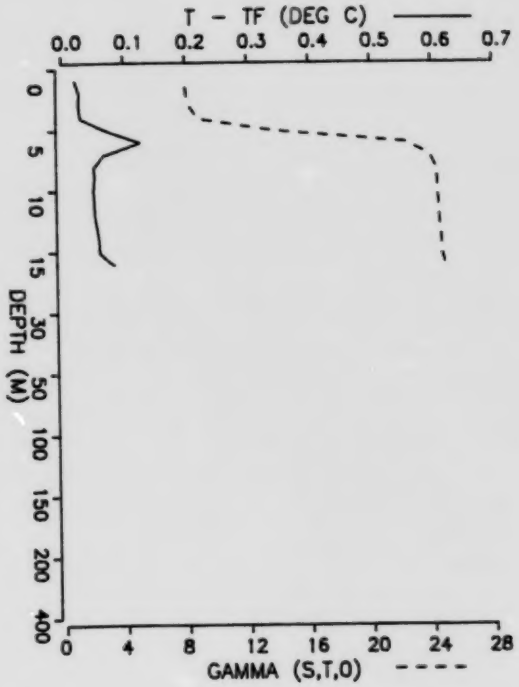


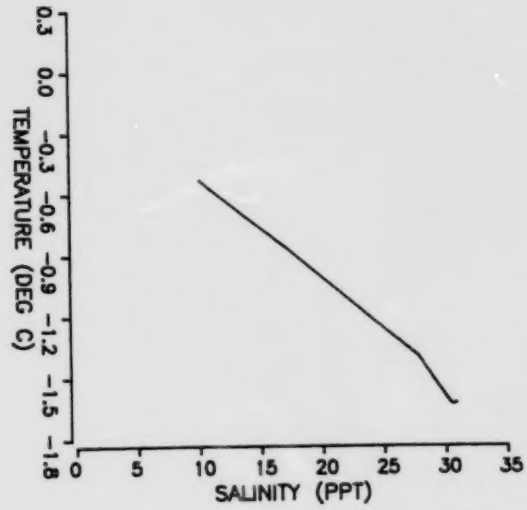
STATION 3-1 CAST # 87005 DATE : 15:00 MDT ON 05/04/ 87
WATER DEPTH 9.7 M ICE THICKNESS 1.8 M INSTRUMENT : APPL MICROSYS CTD
LAT : 69 47.00 N LONG : 133 21.10 W

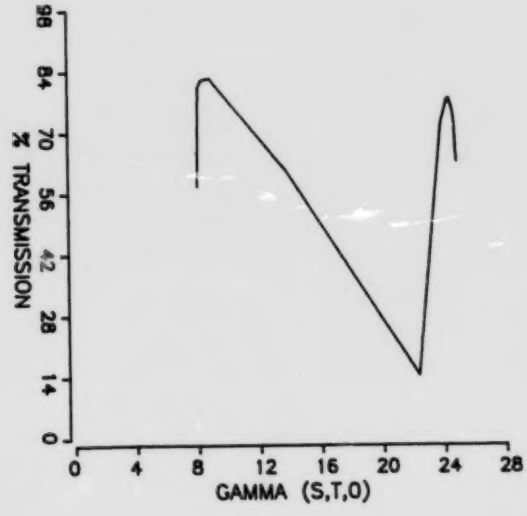
STATION	LAT	LONG	DATE
4A-1	69 55.0 N	133 22.3 W	18:54 MDT ON 06 04 87

DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.53	10.11	57.8	2.19	8.03	0.02	0.20
2.0	-0.53	10.20	80.6	0.86	8.10	0.03	0.39
3.0	-0.54	10.49	82.1	0.79	8.33	0.03	0.58
4.0	-0.58	11.15	82.7	0.76	8.86	0.03	0.77
5.0	-0.86	17.24	61.6	1.94	13.78	0.07	0.94
6.0	-1.39	27.82	14.5	7.73	22.34	0.13	1.04
7.0	-1.56	29.73	72.2	1.30	23.89	0.07	1.08
8.0	-1.60	30.22	77.6	1.01	24.29	0.05	1.12
9.0	-1.61	30.34	77.8	1.00	24.39	0.05	1.16
10.0	-1.62	30.38	77.5	1.02	24.42	0.05	1.19
12.0	-1.62	30.48	76.6	1.07	24.50	0.05	1.26
14.0	-1.63	30.66	74.7	1.16	24.65	0.06	1.33
16.0	-1.62	30.75	72.0	1.32	24.72	0.07	1.40
18.0	-1.62	30.94	63.2	1.84	24.88	0.09	1.46





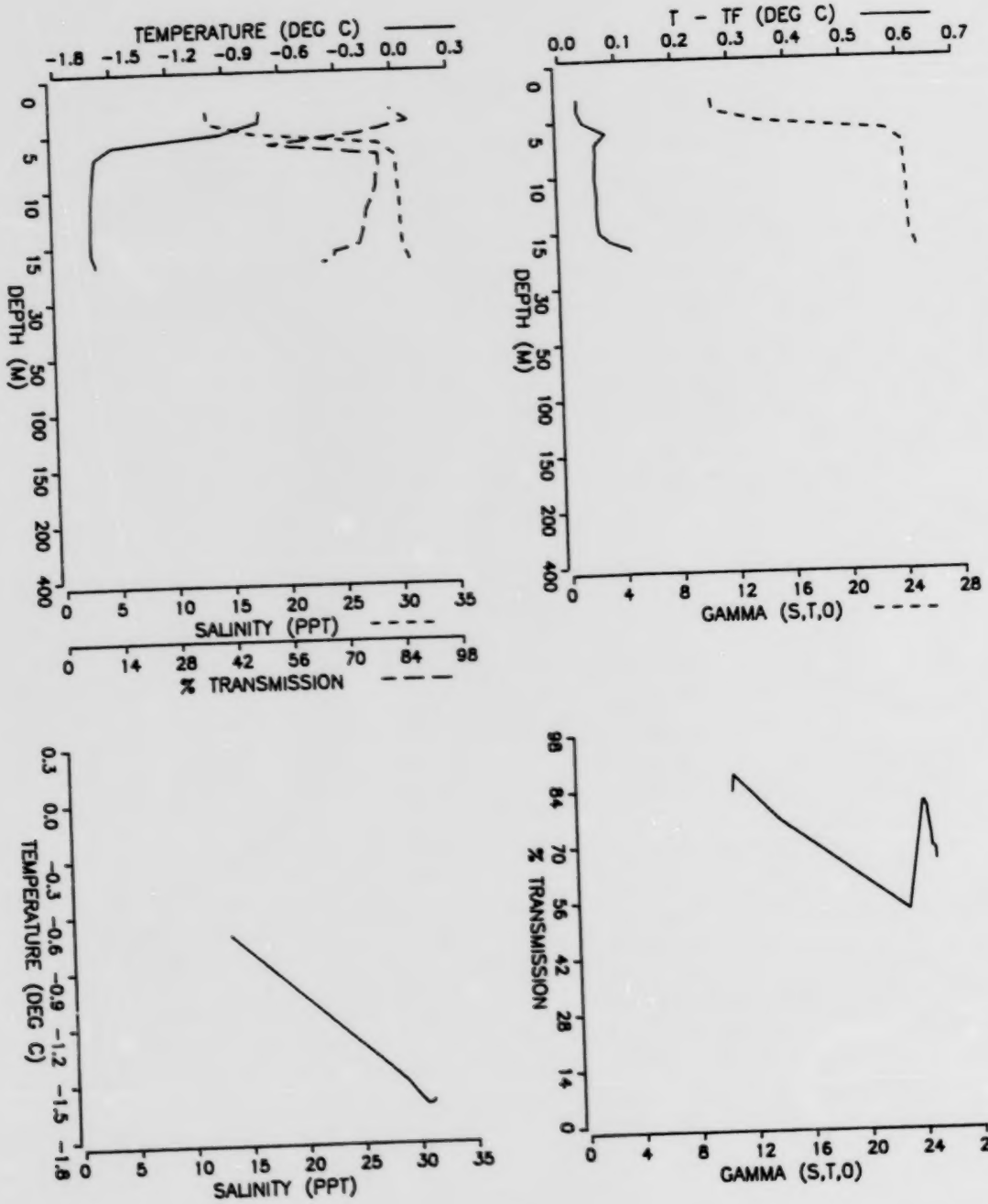




STATION 4A-1 CAST # 87012 DATE : 18:54 MDT ON 06/04/ 87
WATER DEPTH 20.0 M ICE THICKNESS 1.8 M INSTRUMENT : APPL MICROSYS CTD
LAT : 69 55.00 N LONG : 133 22.30 W

STATION	LAT	LONG	DATE
4B-1	69 55.5 N	133 21.7 W	18:03 MDT ON 06/04/ 87

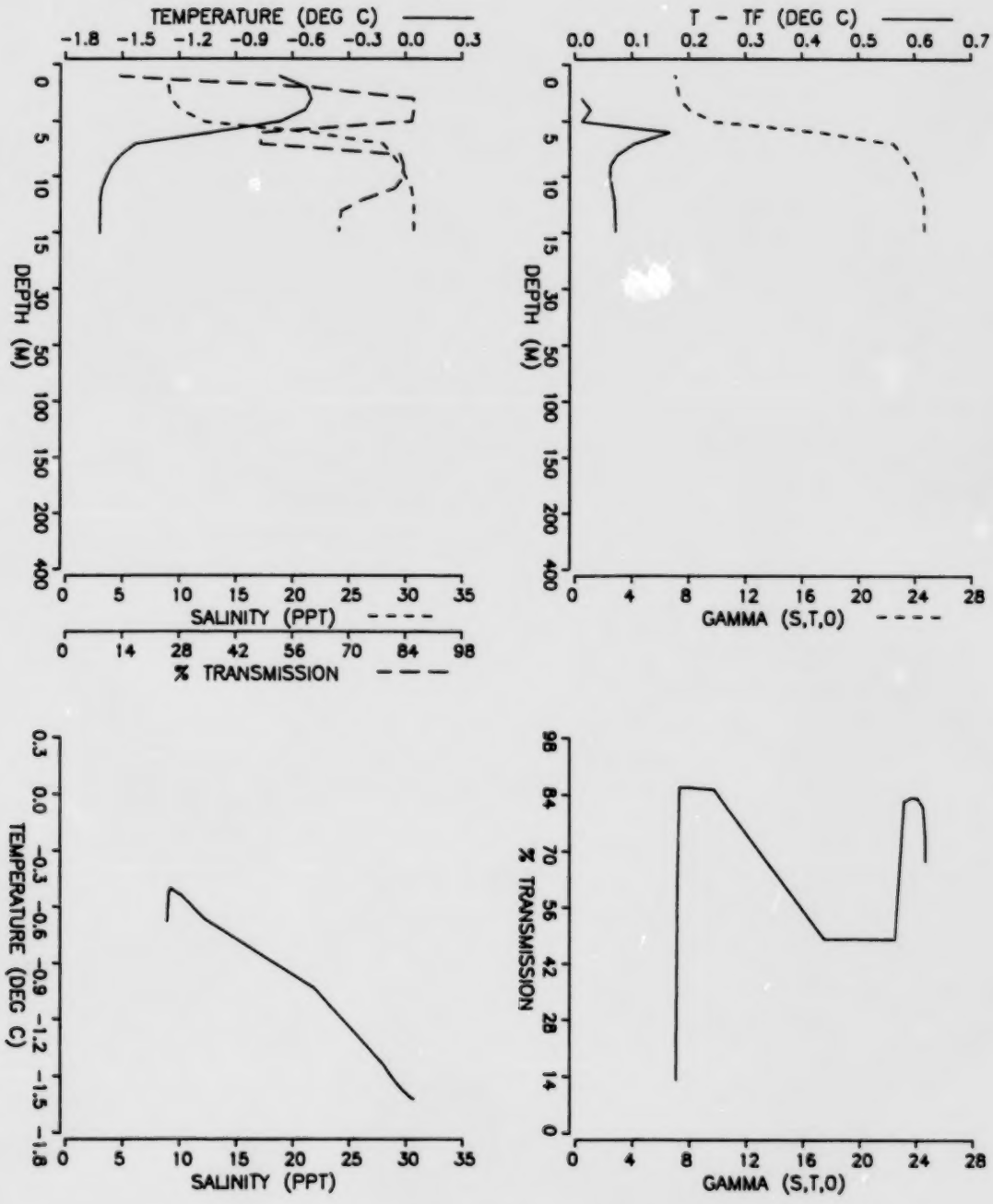
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
3.0	-0.70	13.52	83.8	0.71	10.78	0.03	0.51
4.0	-0.71	13.65	87.8	0.52	10.88	0.03	0.67
5.0	-0.92	17.66	76.5	1.07	14.12	0.04	0.82
6.0	-1.49	28.80	53.3	2.52	23.14	0.08	0.92
7.0	-1.59	30.15	80.3	0.88	24.23	0.06	0.96
8.0	-1.60	30.30	80.4	0.87	24.36	0.06	1.00
9.0	-1.60	30.36	79.8	0.90	24.40	0.06	1.03
10.0	-1.61	30.43	79.5	0.92	24.46	0.06	1.07
12.0	-1.62	30.55	77.3	1.03	24.56	0.06	1.13
14.0	-1.62	30.62	76.2	1.09	24.62	0.06	1.20
16.0	-1.62	30.80	72.7	1.28	24.76	0.08	1.27
18.0	-1.61	31.08	69.0	1.48	24.99	0.10	1.33
20.0	-1.60	31.24	65.7	1.68	25.12	0.12	1.39



STATION 4B-1 CAST # 87011 DATE : 18:03 MDT ON 06/04/ 87
WATER DEPTH 23.0 M ICE THICKNESS 1.8 M INSTRUMENT : APPL MICROSYS CTD
LAT : 69 55.50 N LONG : 133 21.70 W

STATION	LAT	LONG	DATE
4-1	69 53.4 N	133 24.1 W	16:05 MDT ON 05/04/ 87

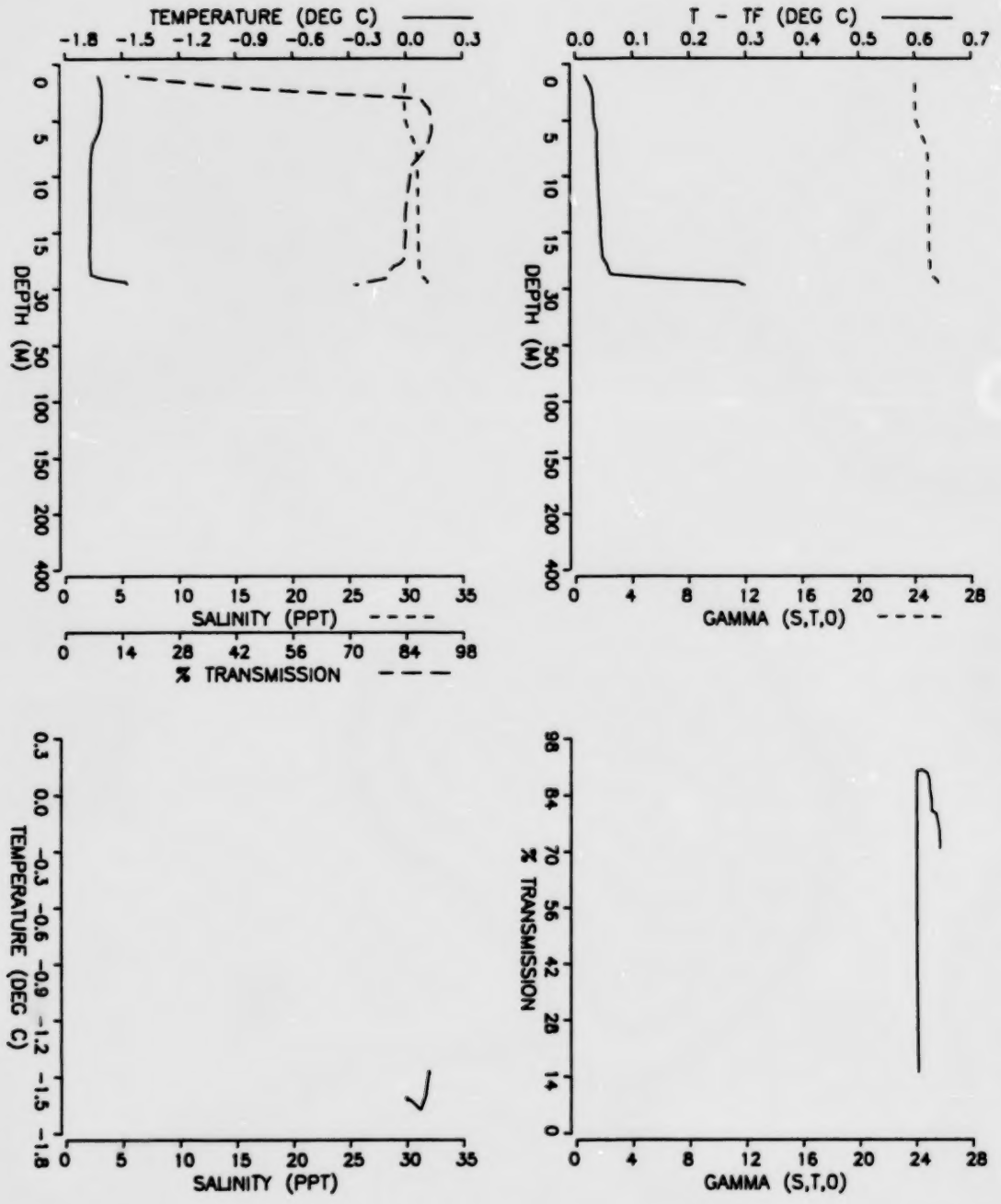
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.67	8.98	13.5	8.01	7.11	-0.18	0.20
2.0	-0.52	9.13	62.2	1.90	7.24	-0.02	0.41
3.0	-0.50	9.33	86.1	0.60	7.40	0.01	0.61
4.0	-0.53	10.24	86.1	0.60	8.13	0.03	0.81
5.0	-0.66	12.34	85.6	0.62	9.82	0.01	1.00
6.0	-1.03	21.95	48.4	2.90	17.59	0.17	1.14
7.0	-1.43	28.07	48.3	2.91	22.54	0.10	1.21
8.0	-1.51	28.88	82.6	0.77	23.20	0.08	1.26
9.0	-1.56	29.55	83.5	0.72	23.75	0.06	1.31
10.0	-1.58	30.04	83.5	0.72	24.14	0.06	1.35
12.0	-1.62	30.71	73.8	1.21	24.69	0.07	1.42
14.0	-1.62	30.72	67.8	1.56	24.70	0.07	1.48
15.0	-1.62	30.73	67.6	1.57	24.71	0.07	1.52



STATION 4-1 CAST # 87006 DATE : 16:05 MDT ON 05/04/ 87
WATER DEPTH 17.0 M ICE THICKNESS 1.3 M INSTRUMENT : APPL MICROSYS CTD
LAT : 69 53.40 N LONG : 133 24.10 W

STATION	LAT	LONG	DATE
5-1	70 2.6 N	133 26.3 W	17:23 MDT ON 05 04 87

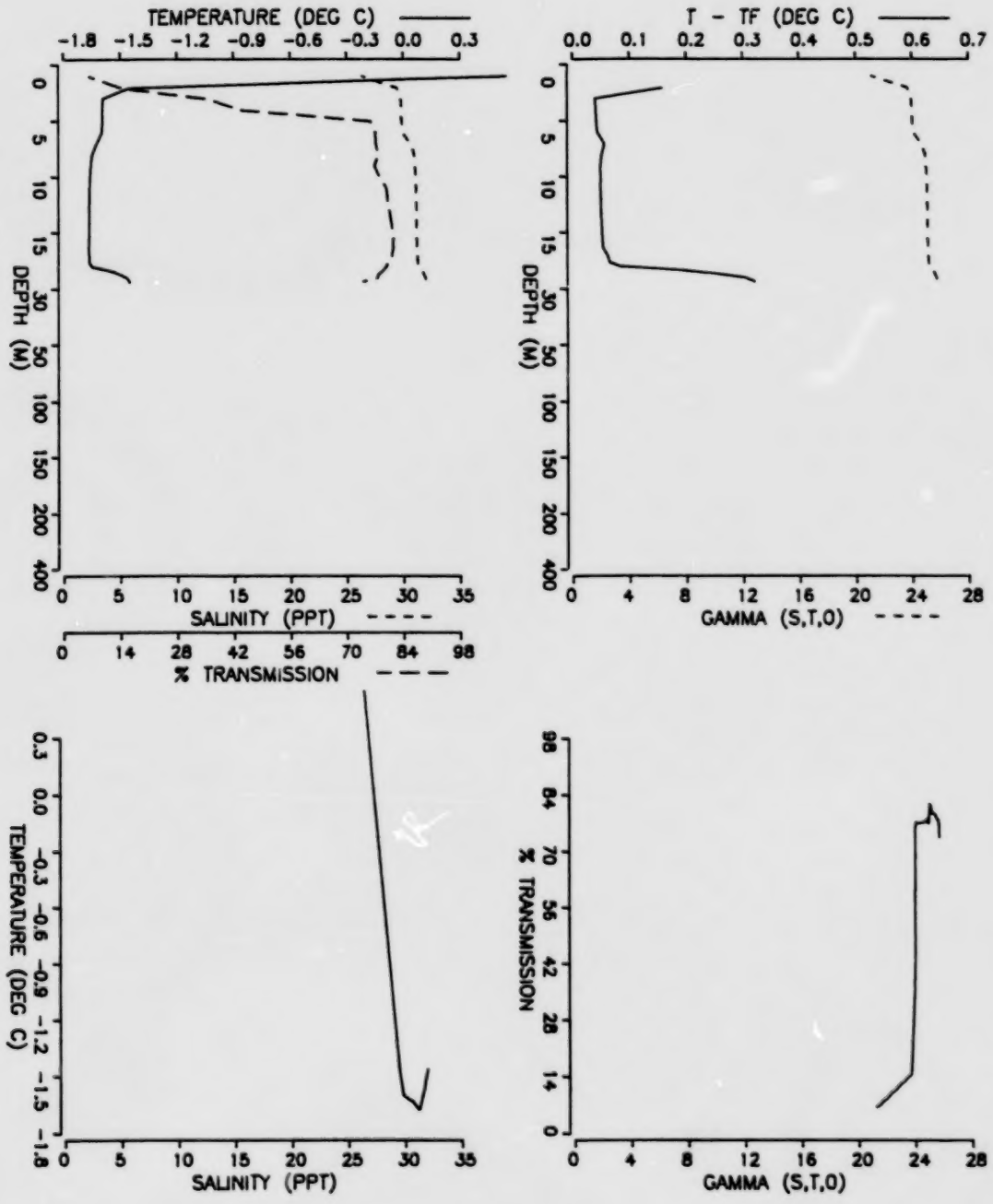
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-1.62	30.05	15.2	7.53	24.15	0.02	0.04
2.0	-1.61	29.94	41.6	3.51	24.06	0.03	0.08
3.0	-1.61	29.94	87.7	0.53	24.06	0.03	0.12
4.0	-1.61	29.96	89.9	0.42	24.08	0.03	0.15
5.0	-1.61	30.01	90.3	0.41	24.13	0.03	0.19
6.0	-1.62	30.36	90.4	0.40	24.40	0.04	0.23
7.0	-1.65	30.82	89.5	0.44	24.78	0.04	0.26
8.0	-1.66	31.01	87.9	0.52	24.94	0.04	0.29
9.0	-1.66	31.05	85.5	0.63	24.97	0.04	0.32
10.0	-1.67	31.07	85.1	0.64	24.99	0.04	0.35
12.0	-1.67	31.11	84.3	0.68	25.01	0.04	0.41
14.0	-1.67	31.12	83.8	0.71	25.02	0.04	0.47
16.0	-1.67	31.12	83.9	0.70	25.03	0.04	0.53
18.0	-1.67	31.13	83.8	0.71	25.04	0.05	0.59
20.0	-1.67	31.14	83.8	0.71	25.04	0.05	0.65
22.0	-1.67	31.15	83.5	0.72	25.05	0.05	0.71
24.0	-1.67	31.21	80.9	0.85	25.10	0.06	0.77
26.0	-1.66	31.23	80.1	0.89	25.11	0.06	0.82
28.0	-1.48	31.90	75.2	1.14	25.65	0.29	0.88
29.0	-1.47	31.93	71.1	1.37	25.68	0.30	0.90



STATION 5-1 CAST # 87007 DATE : 17:23 MDT ON 05/04/ 87
WATER DEPTH 31.0 M ICE THICKNESS 2.0 M INSTRUMENT : APPL MICROSYS CTD
LAT : 70 2.60 N LONG : 133 26.30 W

STATION	LAT	LONG	DATE
5-1A	70 2.6 N	133 26.3 W	13:09 MDT ON 08/04/ 87

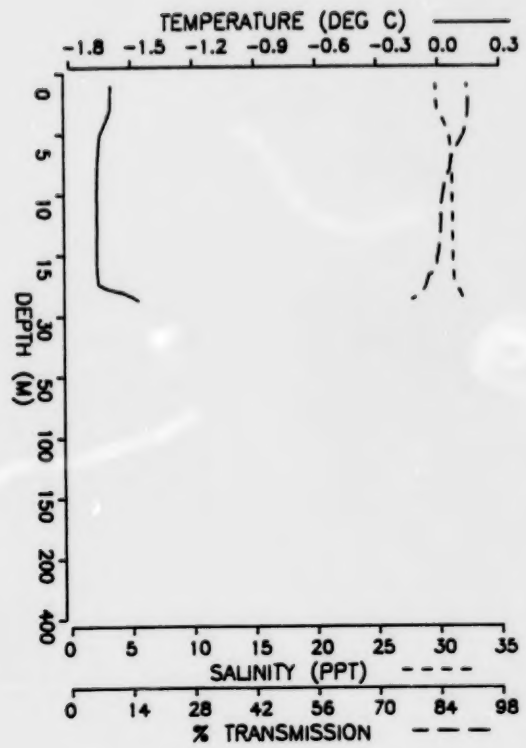
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	0.56	26.45	6.5	10.91	21.20	2.00	0.07
2.0	-1.45	29.50	14.8	7.64	23.71	0.16	0.12
3.0	-1.59	29.83	35.9	4.10	23.98	0.04	0.16
4.0	-1.59	29.88	44.2	3.27	24.01	0.04	0.20
5.0	-1.59	29.90	76.0	1.10	24.03	0.04	0.24
6.0	-1.60	29.97	77.2	1.04	24.09	0.04	0.28
7.0	-1.63	30.69	77.3	1.03	24.67	0.06	0.31
8.0	-1.65	30.98	78.1	0.99	24.91	0.05	0.35
9.0	-1.66	31.07	76.9	1.05	24.98	0.05	0.38
10.0	-1.66	31.14	78.3	0.98	25.04	0.05	0.41
12.0	-1.66	31.17	80.2	0.88	25.06	0.05	0.47
14.0	-1.66	31.18	81.0	0.84	25.07	0.05	0.52
16.0	-1.66	31.19	81.8	0.80	25.08	0.05	0.58
18.0	-1.67	31.20	81.4	0.82	25.09	0.05	0.64
20.0	-1.67	31.24	81.3	0.83	25.12	0.06	0.70
22.0	-1.66	31.27	81.3	0.83	25.15	0.06	0.75
24.0	-1.65	31.31	79.8	0.90	25.18	0.08	0.81
26.0	-1.50	31.82	78.0	1.00	25.59	0.26	0.86
28.0	-1.45	32.02	73.7	1.22	25.75	0.32	0.91

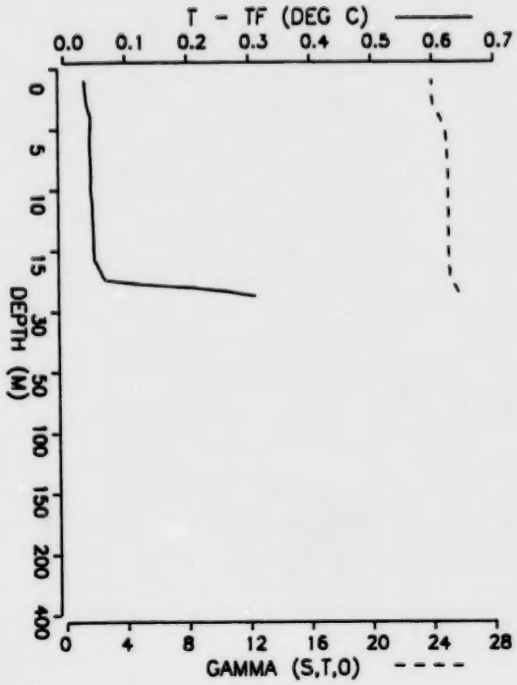


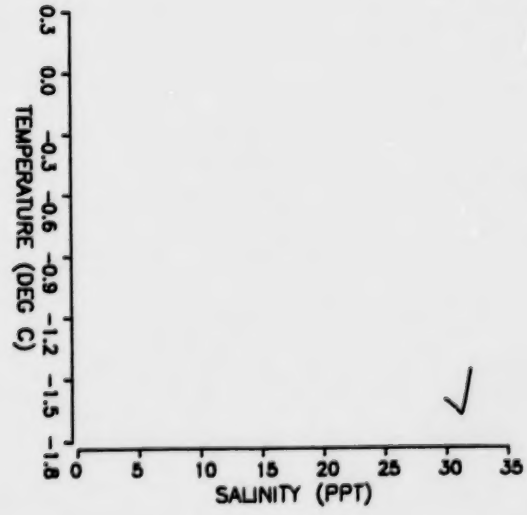
STATION 5-1A CAST # 87018 DATE : 13:09 MDT ON 08/04/ 87
WATER DEPTH 31.0 M ICE THICKNESS 1.5 M INSTRUMENT : APPL MICROSYS CTD
LAT : 70 2.60 N LONG : 133 26.30 W

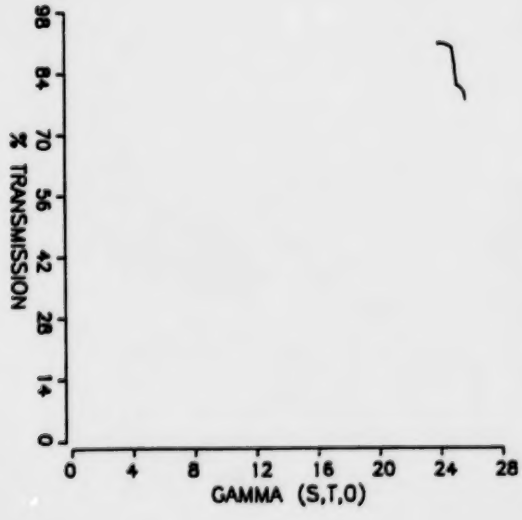
STATION	LAT	LONG	DATE
5-1B	70 2.6 N	133 26.3 W	14:00 MDT ON 08/04/ 87

DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-1.60	29.86	90.6	0.39	24.00	0.03	0.04
2.0	-1.60	29.89	90.9	0.38	24.02	0.04	0.08
3.0	-1.60	29.95	90.8	0.38	24.07	0.04	0.12
4.0	-1.62	30.48	90.5	0.40	24.51	0.04	0.15
5.0	-1.65	30.93	89.9	0.43	24.87	0.04	0.19
6.0	-1.66	31.00	88.3	0.50	24.93	0.04	0.22
7.0	-1.66	31.07	87.0	0.56	24.98	0.04	0.25
8.0	-1.66	31.13	86.6	0.57	25.03	0.04	0.28
9.0	-1.67	31.15	85.5	0.63	25.05	0.04	0.31
10.0	-1.67	31.16	85.1	0.65	25.06	0.04	0.34
12.0	-1.67	31.17	84.6	0.67	25.06	0.05	0.39
14.0	-1.67	31.18	84.3	0.68	25.07	0.05	0.45
16.0	-1.67	31.19	83.6	0.72	25.08	0.05	0.51
18.0	-1.67	31.21	83.7	0.71	25.10	0.05	0.57
20.0	-1.66	31.26	81.9	0.80	25.13	0.06	0.63
22.0	-1.66	31.28	81.3	0.83	25.15	0.07	0.68
24.0	-1.54	31.73	80.3	0.88	25.52	0.21	0.74
26.0	-1.46	32.00	77.6	1.02	25.74	0.31	0.78





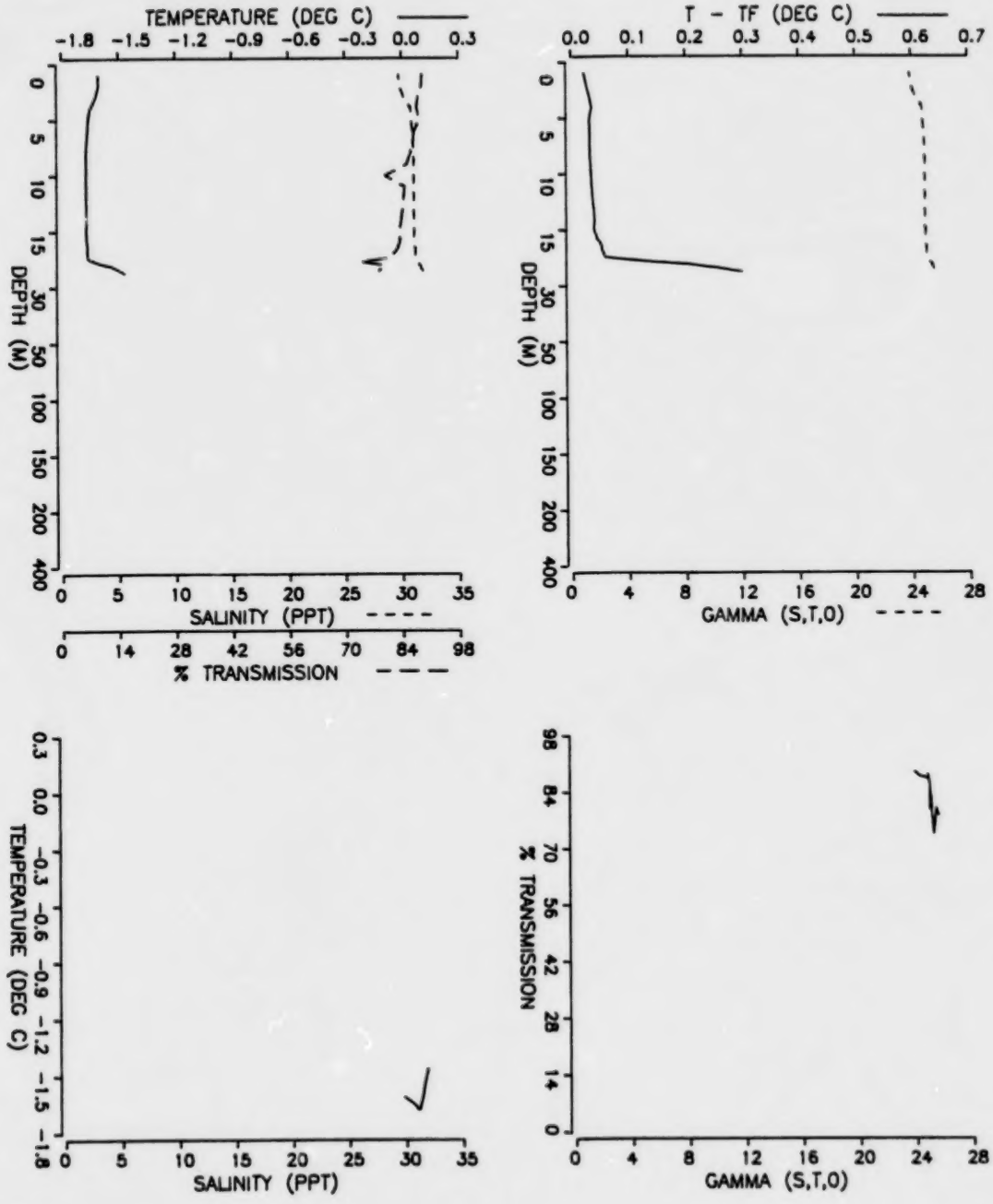




STATION 5-1B CAST # 87019 DATE : 14:00 MDT ON 08/04/ 87
WATER DEPTH 31.0 M ICE THICKNESS 1.5 M INSTRUMENT : APPL MICROSYS CTD
LAT : 70 2.60 N LONG : 133 26.30 W

STATION	LAT	LONG	DATE
5-1C	70 2.6 N	133 26.3 W	14:54 MDT ON 08/04/ 87

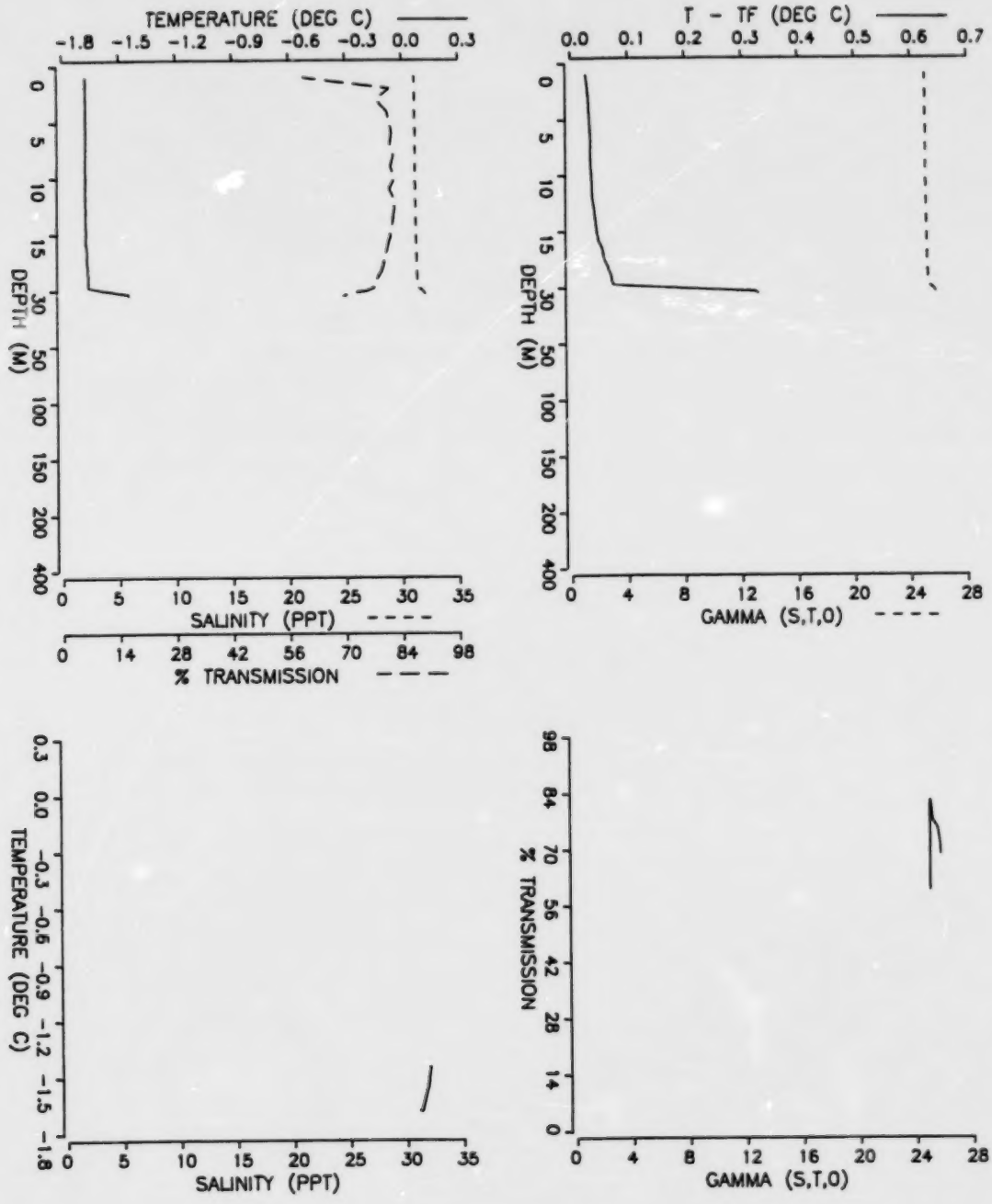
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-1.60	29.80	89.1	0.46	23.95	0.02	0.04
2.0	-1.60	29.86	88.9	0.47	24.00	0.03	0.08
3.0	-1.62	30.23	88.0	0.51	24.30	0.03	0.12
4.0	-1.65	30.81	87.7	0.53	24.77	0.04	0.15
5.0	-1.66	30.89	88.5	0.49	24.84	0.03	0.18
6.0	-1.66	30.95	87.1	0.55	24.88	0.03	0.21
7.0	-1.67	31.01	86.8	0.57	24.93	0.03	0.25
8.0	-1.67	31.05	86.2	0.59	24.97	0.03	0.28
9.0	-1.67	31.06	85.2	0.64	24.98	0.03	0.31
10.0	-1.67	31.07	79.9	0.90	24.98	0.04	0.34
12.0	-1.67	31.07	84.5	0.67	24.99	0.04	0.40
14.0	-1.67	31.08	83.9	0.70	24.99	0.04	0.45
16.0	-1.67	31.10	83.6	0.72	25.01	0.04	0.51
18.0	-1.66	31.13	83.5	0.72	25.04	0.05	0.57
20.0	-1.66	31.17	82.7	0.76	25.06	0.05	0.63
22.0	-1.66	31.18	81.6	0.81	25.08	0.06	0.69
24.0	-1.54	31.61	80.1	0.89	25.42	0.21	0.75
26.0	-1.46	31.89	78.2	0.98	25.65	0.30	0.79



STATION 5-1C CAST # 87020 DATE : 14:54 MDT ON 08/04/ 87
WATER DEPTH 31.0 M ICE THICKNESS 1.5 M INSTRUMENT : APPL MICROSYS CTD
LAT : 70 2.60 N LONG : 133 26.30 W

STATION	LAT	LONG	DATE
6-1	70 7.3 N	133 27.7 W	18:38 MDT ON 05/04/ 87

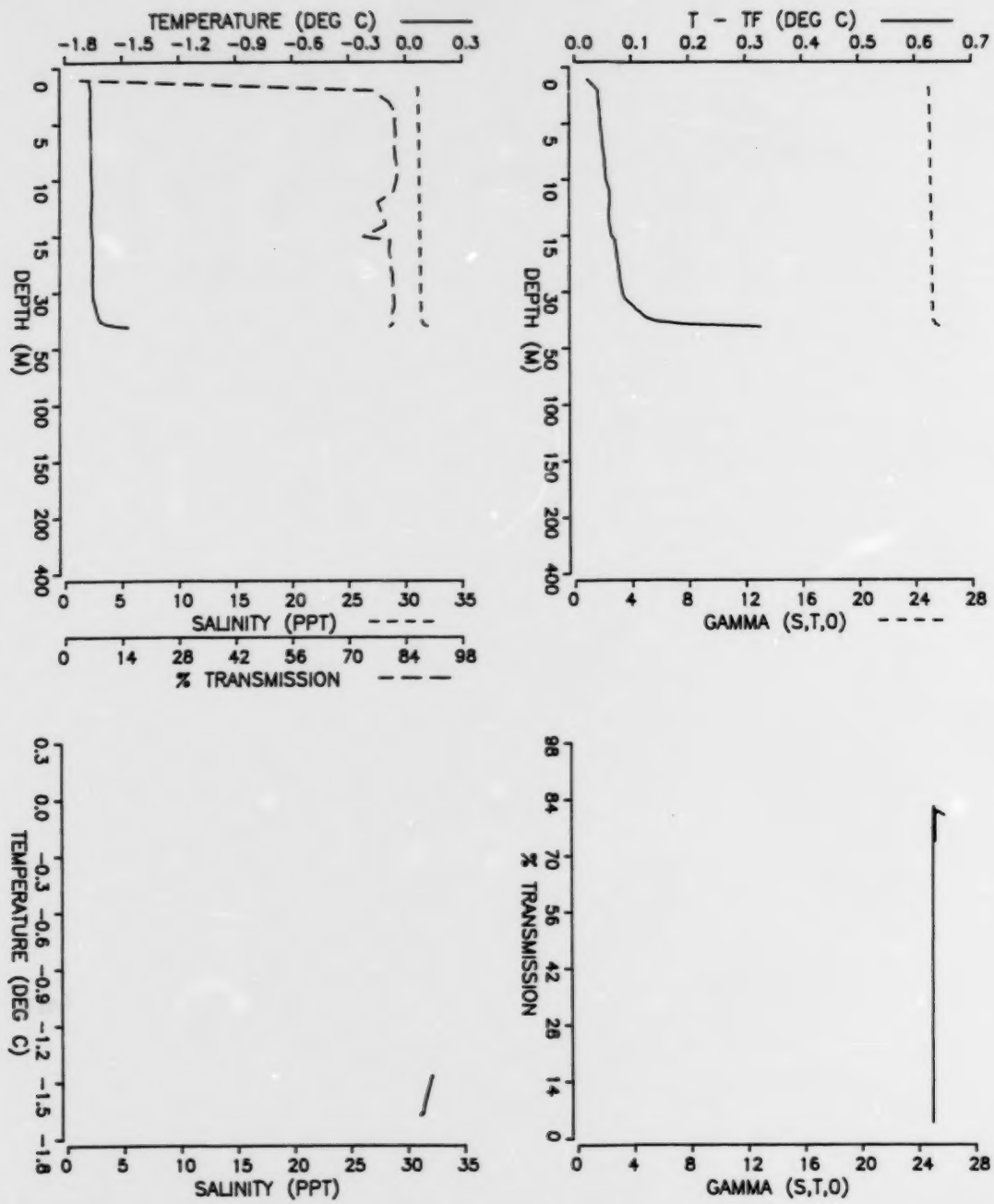
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-1.68	31.14	60.0	2.05	25.04	0.03	0.03
2.0	-1.68	31.17	81.0	0.84	25.06	0.03	0.06
3.0	-1.68	31.18	77.7	1.01	25.07	0.03	0.09
4.0	-1.68	31.18	80.3	0.88	25.08	0.03	0.12
5.0	-1.68	31.19	81.1	0.84	25.08	0.03	0.15
6.0	-1.68	31.20	81.5	0.82	25.09	0.03	0.17
7.0	-1.68	31.21	81.2	0.83	25.09	0.04	0.20
8.0	-1.68	31.21	82.0	0.80	25.09	0.04	0.23
9.0	-1.68	31.21	81.2	0.83	25.10	0.04	0.26
10.0	-1.68	31.21	82.2	0.78	25.10	0.04	0.29
12.0	-1.68	31.23	82.3	0.78	25.11	0.04	0.35
14.0	-1.68	31.27	81.7	0.81	25.14	0.04	0.40
16.0	-1.67	31.29	81.1	0.84	25.16	0.05	0.46
18.0	-1.67	31.30	80.6	0.86	25.17	0.05	0.52
20.0	-1.67	31.31	80.2	0.89	25.18	0.06	0.57
22.0	-1.67	31.32	79.7	0.91	25.19	0.06	0.63
24.0	-1.67	31.34	79.3	0.93	25.21	0.07	0.69
26.0	-1.66	31.37	78.3	0.98	25.22	0.07	0.74
28.0	-1.66	31.38	77.7	1.01	25.23	0.07	0.80
30.0	-1.55	31.81	75.7	1.11	25.59	0.21	0.85
32.0	-1.44	32.06	69.2	1.47	25.78	0.33	0.89



STATION 6-1 CAST # 87008 DATE : 18:38 MDT ON 05/04/ 87
WATER DEPTH 34.0 M ICE THICKNESS 1.3 M INSTRUMENT : APPL MICROSYS CTD
LAT : 70 7.30 N LONG : 133 27.70 W

STATION	LAT	LONG	DATE
7-1	70 15.3 N	133 37.1 W	19:40 MDT ON 05/04/ 87

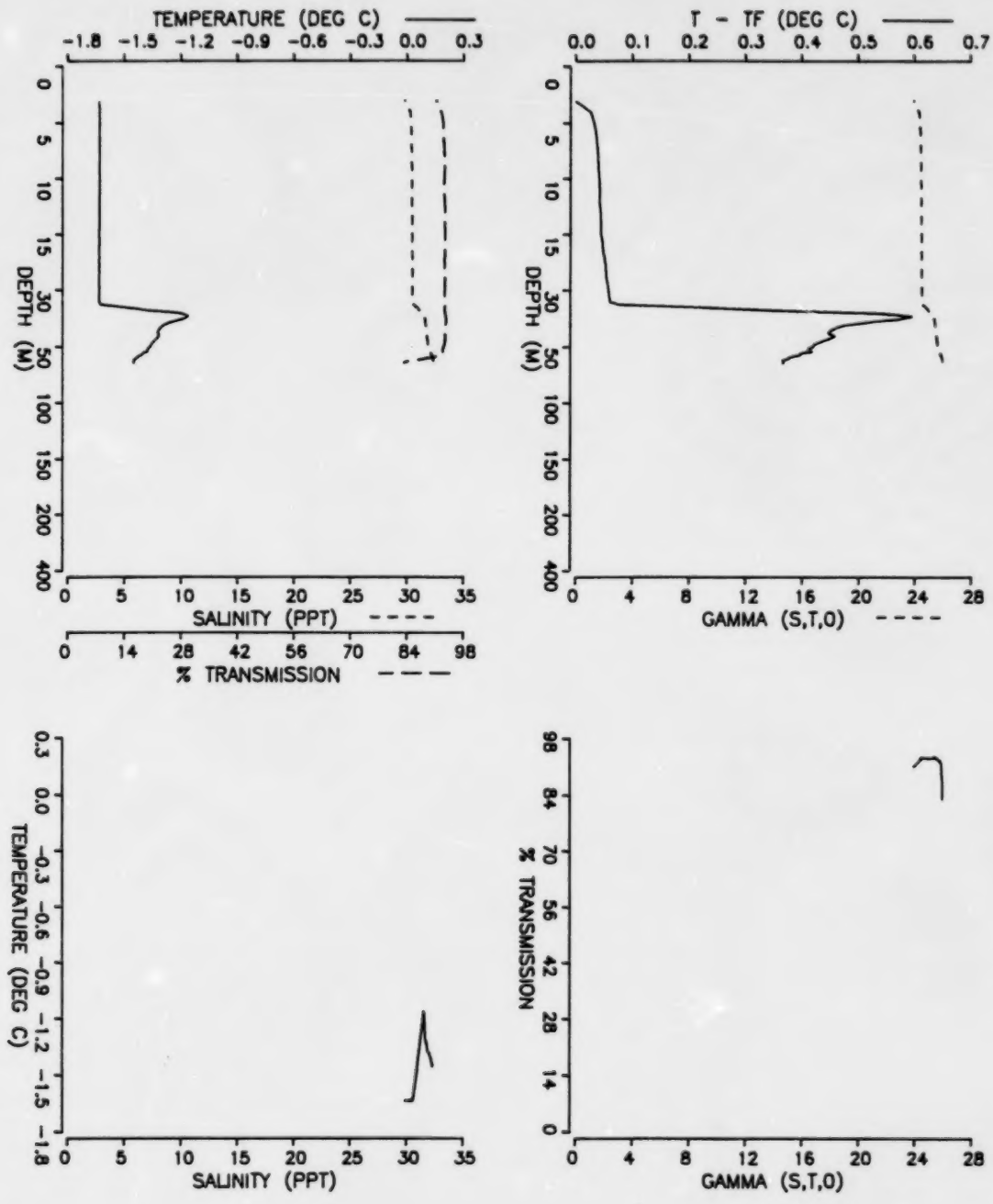
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-1.68	31.06	3.9	13.00	24.97	0.02	0.03
2.0	-1.66	31.17	76.0	1.10	25.07	0.04	0.06
3.0	-1.67	31.20	79.9	0.90	25.09	0.04	0.09
4.0	-1.66	31.21	81.7	0.81	25.10	0.04	0.12
5.0	-1.67	31.21	81.5	0.82	25.10	0.05	0.15
6.0	-1.66	31.22	81.7	0.81	25.11	0.05	0.18
7.0	-1.66	31.24	81.5	0.82	25.12	0.05	0.20
8.0	-1.66	31.25	81.5	0.82	25.13	0.05	0.23
9.0	-1.66	31.26	82.3	0.78	25.13	0.05	0.26
10.0	-1.66	31.26	81.9	0.80	25.14	0.06	0.29
12.0	-1.66	31.30	77.2	1.03	25.17	0.06	0.35
14.0	-1.66	31.32	79.3	0.93	25.19	0.06	0.40
16.0	-1.65	31.33	80.3	0.88	25.20	0.07	0.46
18.0	-1.65	31.34	80.1	0.89	25.21	0.07	0.51
20.0	-1.66	31.35	80.2	0.88	25.21	0.07	0.57
22.0	-1.66	31.36	80.8	0.85	25.22	0.08	0.62
24.0	-1.66	31.36	80.7	0.86	25.22	0.08	0.68
26.0	-1.66	31.36	80.9	0.85	25.22	0.08	0.73
28.0	-1.66	31.37	81.0	0.84	25.22	0.08	0.79
30.0	-1.65	31.37	81.1	0.84	25.23	0.08	0.85
35.0	-1.64	31.40	81.3	0.83	25.25	0.10	0.98
40.0	-1.61	31.47	81.1	0.84	25.31	0.14	1.12
42.0	-1.46	32.12	80.1	0.89	25.83	0.33	1.17



STATION 7-1 CAST # 87009 DATE : 19:40 MDT ON 05/04/ 87
WATER DEPTH UNKNOWN ICE THICKNESS 1.8 M INSTRUMENT : APPL MICROSYS CTD
LAT : 70 15.30 N LONG : 133 37.10 W

STATION	LAT	LONG	DATE
9-1	70 43.5 N	134 11.0 W	16:01 MST ON 03 04 87

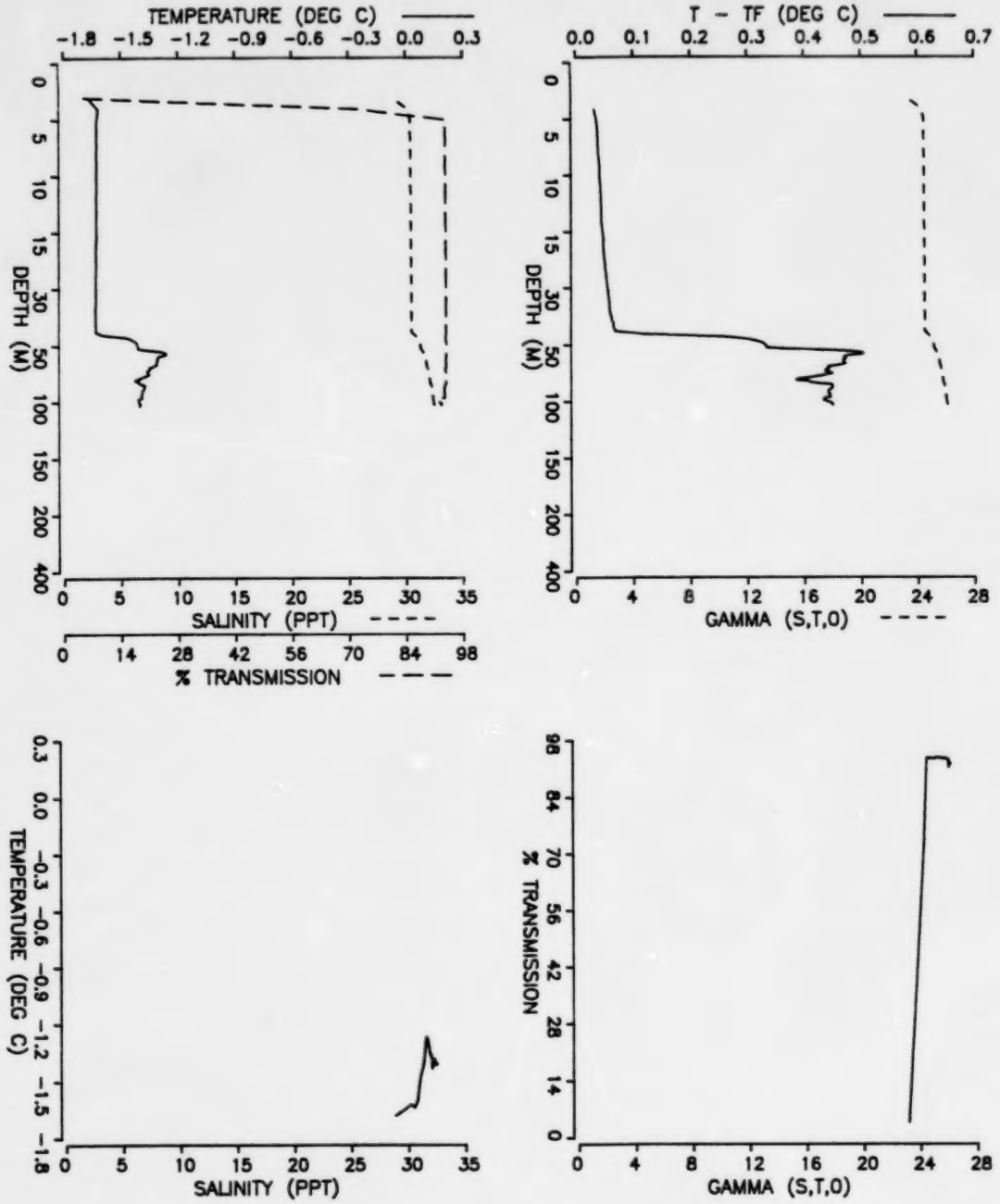
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
3.0	-1.63	29.85	91.3	0.36	23.99	0.00	0.12
4.0	-1.63	30.30	92.5	0.31	24.36	0.03	0.16
5.0	-1.63	30.37	92.9	0.29	24.41	0.03	0.19
6.0	-1.63	30.41	93.0	0.29	24.45	0.04	0.23
7.0	-1.63	30.43	93.2	0.28	24.46	0.04	0.26
8.0	-1.63	30.45	93.3	0.28	24.48	0.04	0.30
9.0	-1.63	30.46	93.4	0.28	24.49	0.04	0.33
10.0	-1.63	30.47	93.3	0.28	24.49	0.04	0.37
12.0	-1.63	30.48	93.4	0.27	24.50	0.04	0.44
14.0	-1.63	30.50	93.4	0.27	24.52	0.04	0.50
16.0	-1.63	30.50	93.4	0.27	24.52	0.05	0.57
18.0	-1.63	30.51	93.3	0.28	24.53	0.05	0.64
20.0	-1.63	30.51	93.5	0.27	24.53	0.05	0.71
22.0	-1.63	30.52	93.2	0.28	24.54	0.05	0.78
24.0	-1.63	30.52	93.3	0.28	24.54	0.05	0.85
26.0	-1.63	30.53	93.4	0.27	24.54	0.05	0.92
28.0	-1.63	30.53	93.5	0.27	24.55	0.06	0.98
30.0	-1.63	30.53	93.4	0.27	24.55	0.06	1.05
35.0	-1.62	30.65	93.4	0.27	24.64	0.08	1.22
40.0	-1.19	31.62	93.7	0.26	25.42	0.57	1.36
45.0	-1.32	31.77	93.4	0.27	25.55	0.45	1.49
50.0	-1.36	31.90	93.1	0.28	25.65	0.42	1.61
55.0	-1.40	32.13	92.5	0.31	25.84	0.40	1.72
60.0	-1.43	32.29	88.5	0.49	25.97	0.38	1.83
64.0	-1.45	32.33	83.1	0.74	26.00	0.37	1.91



STATION 9-1 CAST # 87003 DATE : 16:01 MST ON 03/04/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 70 43.50 N LONG : 134 11.00 W

STATION	LAT	LONG	DATE
10-1	70 57.7 N	134 29.1 W	15:18 MST ON 01/04 87

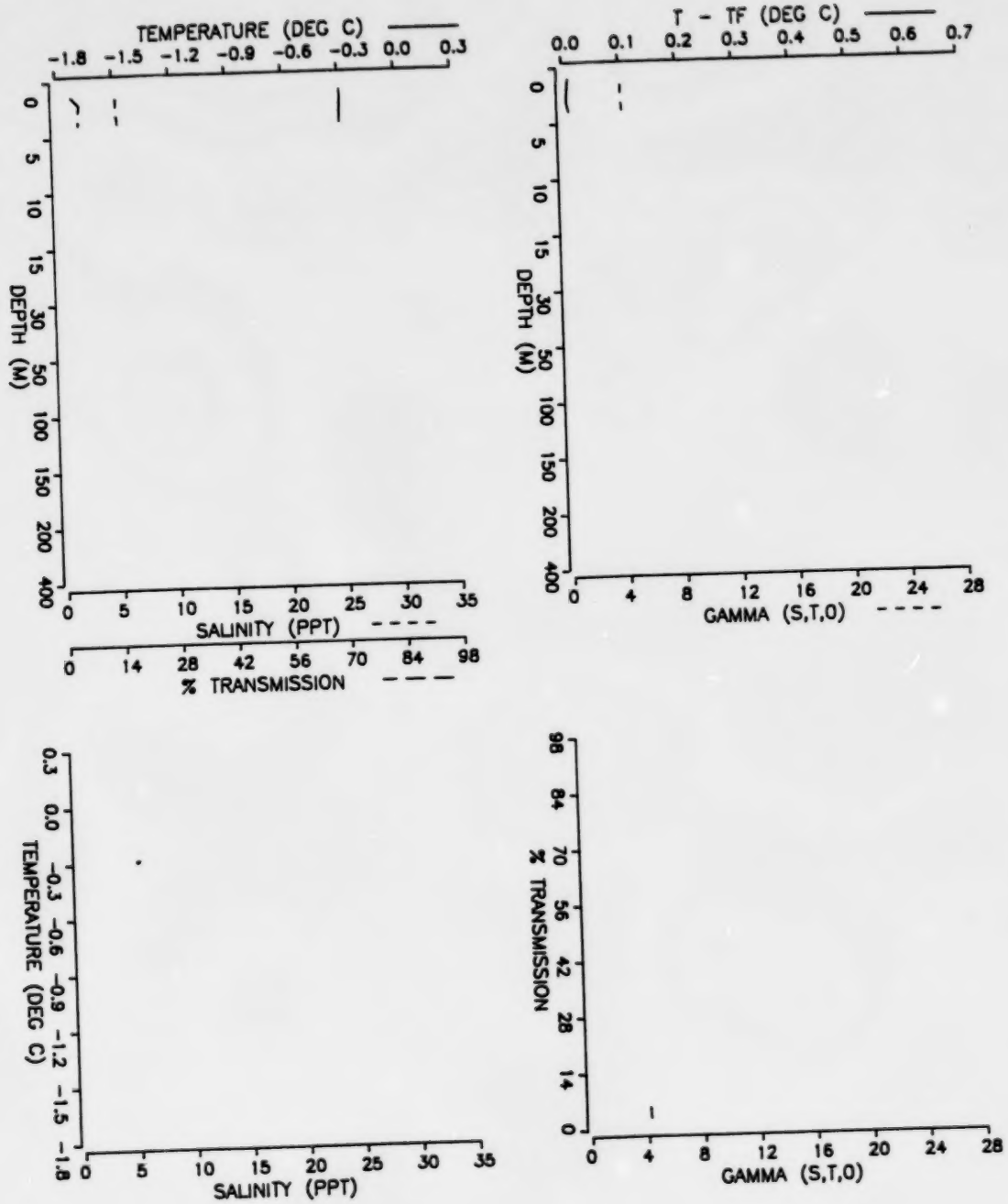
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
3.0	-1.68	28.84	3.8	13.09	23.18	-0.10	0.14
4.0	-1.62	30.19	72.2	1.30	24.27	0.03	0.18
5.0	-1.63	30.42	93.6	0.27	24.45	0.04	0.22
6.0	-1.63	30.43	93.6	0.27	24.46	0.04	0.25
7.0	-1.63	30.44	93.6	0.26	24.47	0.04	0.29
8.0	-1.63	30.44	93.6	0.26	24.47	0.04	0.32
9.0	-1.63	30.45	93.6	0.26	24.48	0.04	0.36
10.0	-1.63	30.46	93.6	0.26	24.49	0.04	0.39
12.0	-1.63	30.46	93.7	0.26	24.49	0.04	0.46
14.0	-1.63	30.47	93.7	0.26	24.49	0.04	0.53
16.0	-1.63	30.47	93.7	0.26	24.50	0.05	0.60
18.0	-1.63	30.48	93.7	0.26	24.51	0.05	0.67
20.0	-1.63	30.50	93.7	0.26	24.52	0.05	0.74
22.0	-1.63	30.49	93.7	0.26	24.51	0.05	0.81
24.0	-1.63	30.49	93.7	0.26	24.51	0.05	0.88
26.0	-1.63	30.49	93.7	0.26	24.51	0.05	0.95
28.0	-1.63	30.49	93.7	0.26	24.51	0.05	1.02
30.0	-1.63	30.50	93.7	0.26	24.52	0.05	1.08
35.0	-1.63	30.50	93.7	0.26	24.52	0.06	1.26
40.0	-1.63	30.50	93.8	0.26	24.52	0.06	1.43
45.0	-1.63	30.51	93.8	0.26	24.53	0.07	1.60
50.0	-1.41	31.27	93.9	0.25	25.14	0.33	1.75
55.0	-1.29	31.49	93.9	0.25	25.31	0.47	1.89
60.0	-1.31	31.74	93.8	0.26	25.52	0.47	2.02
65.0	-1.32	31.77	93.8	0.26	25.54	0.47	2.14
70.0	-1.35	31.90	93.7	0.26	25.65	0.45	2.26
75.0	-1.36	31.97	93.6	0.26	25.71	0.45	2.38
80.0	-1.42	32.05	93.8	0.26	25.77	0.39	2.49
85.0	-1.38	32.20	93.5	0.27	25.90	0.45	2.60
90.0	-1.39	32.29	93.3	0.28	25.97	0.44	2.70
95.0	-1.39	32.33	93.4	0.27	26.00	0.45	2.80
100.0	-1.41	32.40	92.3	0.32	26.06	0.44	2.90
103.0	-1.41	32.50	92.4	0.32	26.14	0.45	2.96



STATION 10-1 CAST # 87002 DATE : 15:18 MST ON 01/04/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 70 57.74 N LONG : 134 29.11 W

STATION	LAT	LONG	DATE
Y1-1	69 57.0 N	131 27.5 W	11:17 MDT ON 07/04/ 87

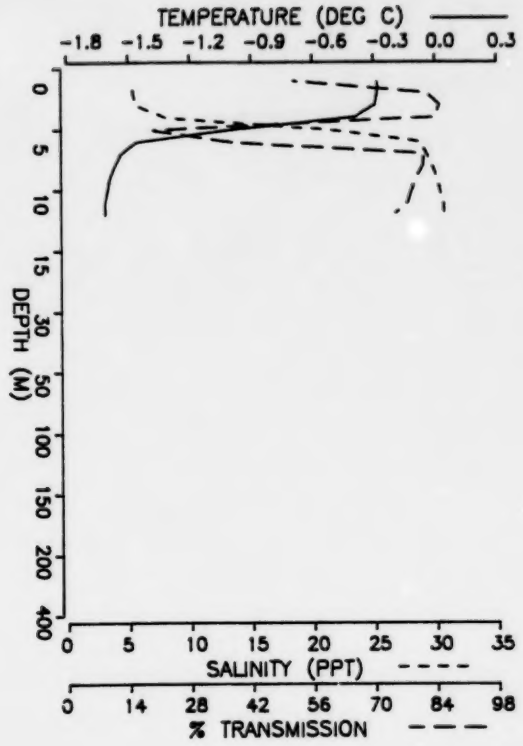
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.28	5.40	3.1	13.89	4.22	0.01	0.23
2.0	-0.28	5.34	5.9	11.35	4.18	0.01	0.47
3.0	-0.29	5.37	5.6	11.54	4.20	0.01	0.70
4.0	-0.29	5.47	5.6	11.53	4.28	0.01	0.94

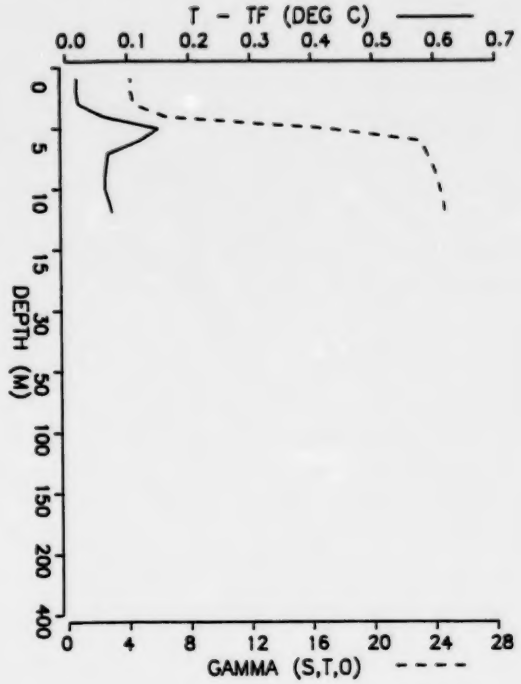


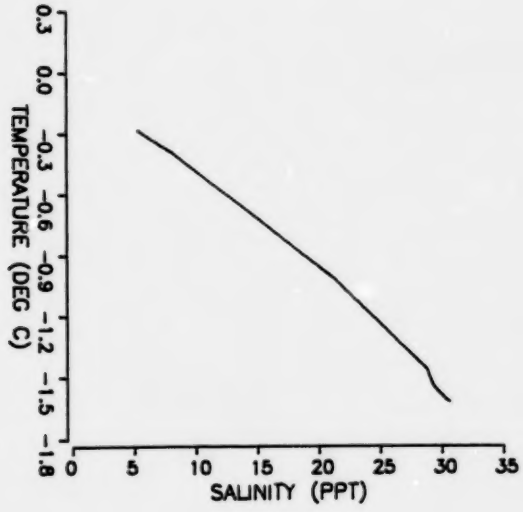
STATION Y1-1 CAST # 87016 DATE : 11:17 MDT ON 07/04/ 87
WATER DEPTH 5.2 M ICE THICKNESS 1.5 M INSTRUMENT : APPL MICROSYS CTD
LAT : 69 57.00 N LONG : 131 27.50 W

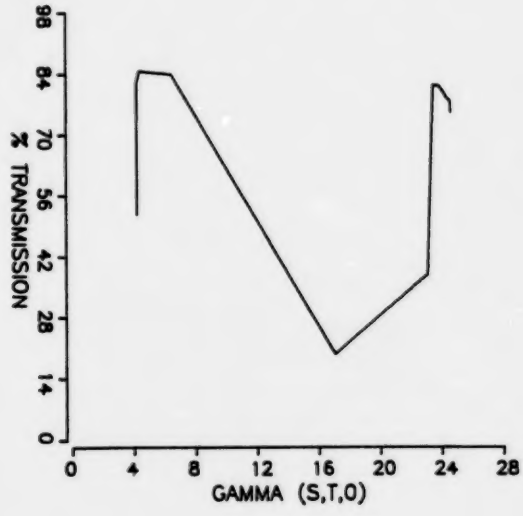
STATION	LAT	LONG	DATE
Y2-1	70 1.9 N	131 32.9 W	12:15 MDT ON 07/04/ 87

DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.28	5.43	51.8	2.63	4.25	0.02	0.23
2.0	-0.28	5.42	82.0	0.79	4.24	0.02	0.47
3.0	-0.29	5.68	84.9	0.65	4.45	0.02	0.70
4.0	-0.39	8.21	84.1	0.69	6.49	0.06	0.92
5.0	-1.01	21.38	19.8	6.49	17.13	0.15	1.08
6.0	-1.46	28.83	37.9	3.88	23.17	0.12	1.16
7.0	-1.54	29.31	81.3	0.83	23.56	0.07	1.20
8.0	-1.56	29.77	81.2	0.83	23.92	0.07	1.24
9.0	-1.59	30.16	79.7	0.91	24.24	0.06	1.28
10.0	-1.60	30.35	78.7	0.96	24.40	0.06	1.32
12.0	-1.61	30.71	74.8	1.16	24.69	0.08	1.39





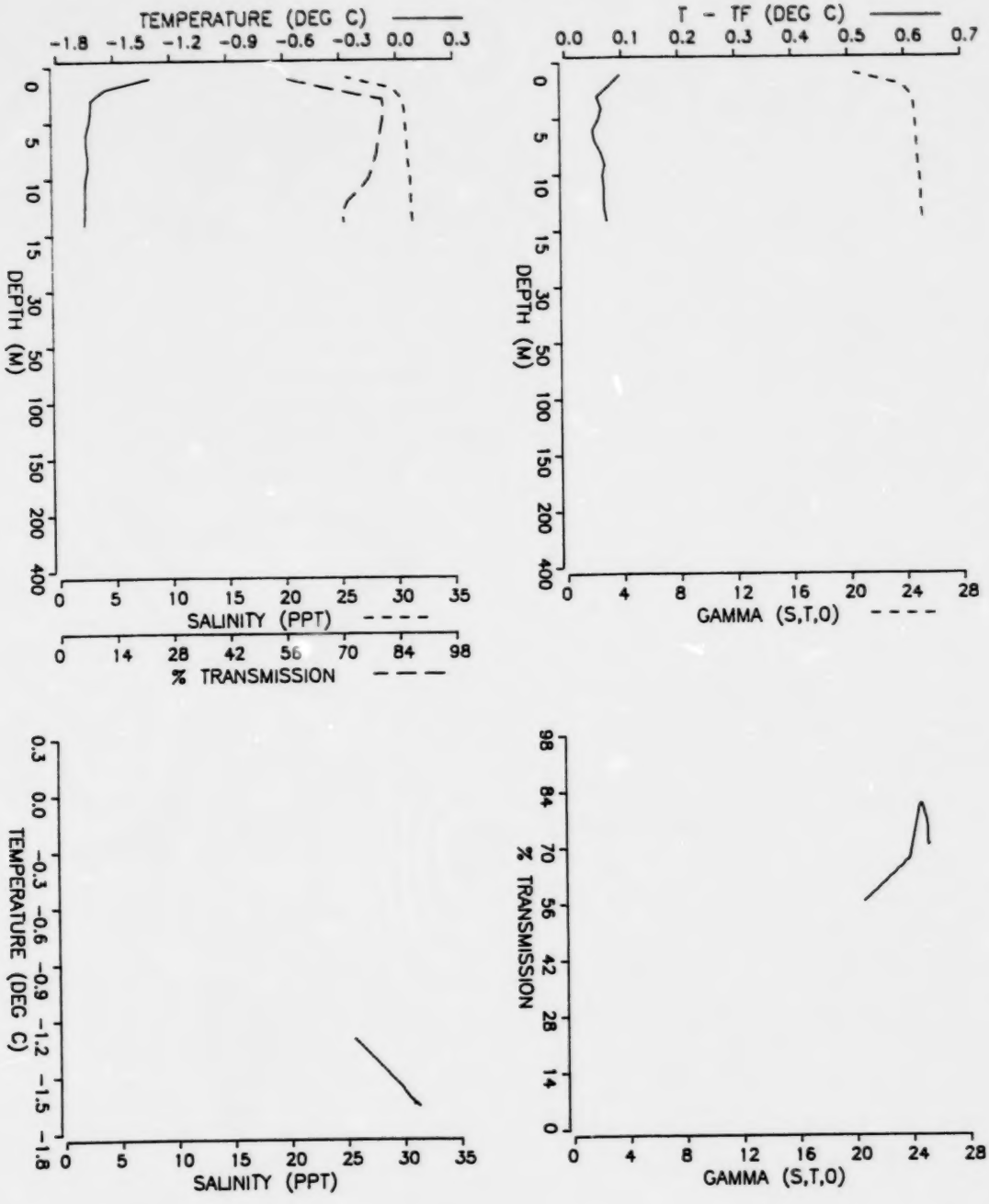




STATION Y2-1 CAST # 87017 DATE : 12:15 MDT ON 07/04/ 87
WATER DEPTH 14.5 M ICE THICKNESS 1.4 M INSTRUMENT : APPL MICROSYS CTD
LAT : 70 1.90 N LONG : 131 32.90 W

STATION	LAT	LONG	DATE
Y3-1	70 5.1 N	131 32.9 W	14:09 MDT ON 07/04/ 87

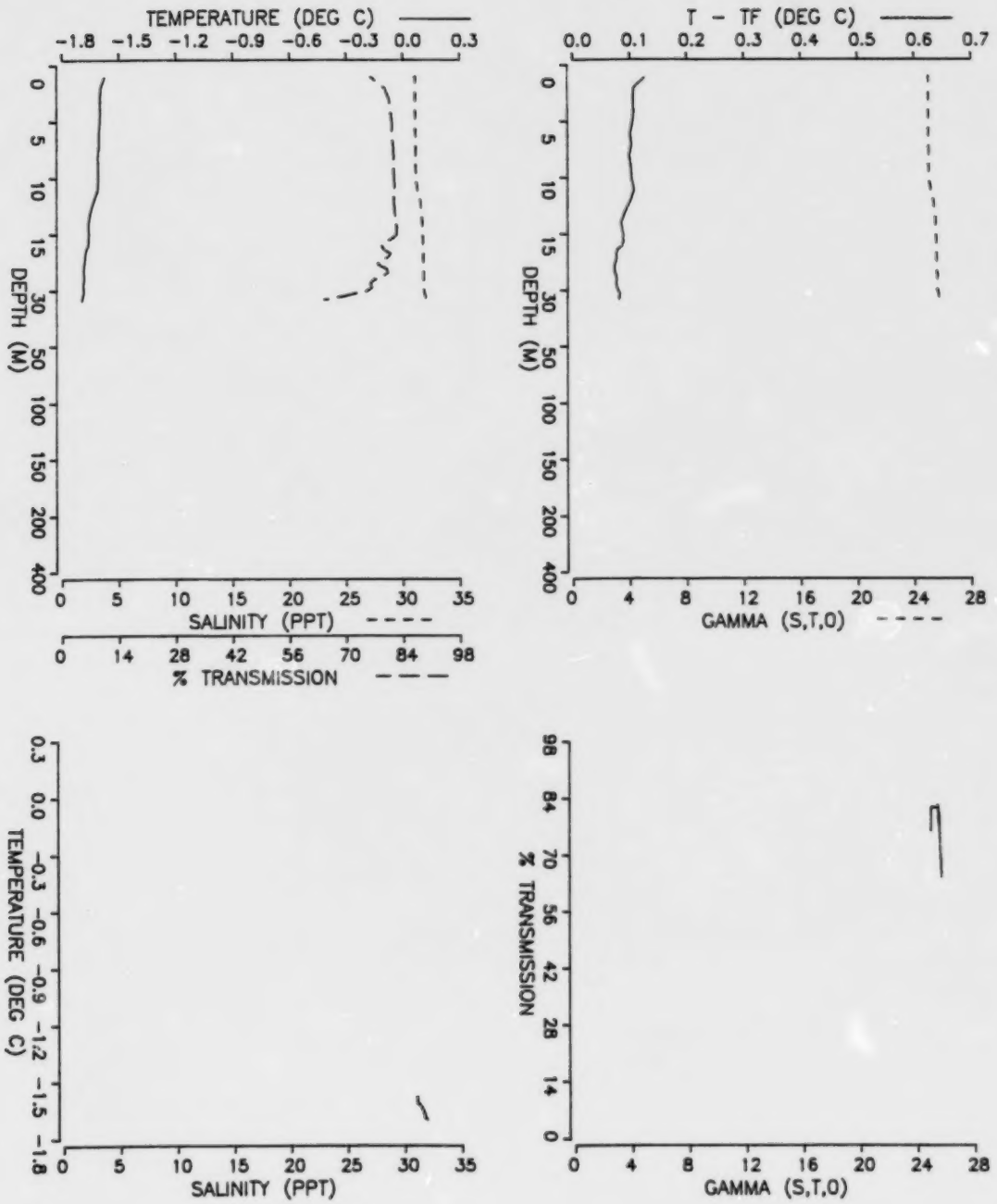
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-1.30	25.68	56.4	2.29	20.60	0.10	0.07
2.0	-1.54	29.69	67.4	1.58	23.86	0.08	0.13
3.0	-1.62	30.58	80.5	0.87	24.59	0.06	0.17
4.0	-1.62	30.73	81.1	0.84	24.71	0.06	0.20
5.0	-1.63	30.81	80.5	0.87	24.77	0.06	0.23
6.0	-1.64	30.87	80.1	0.89	24.82	0.05	0.26
7.0	-1.64	30.93	79.5	0.92	24.87	0.05	0.29
8.0	-1.64	30.98	79.0	0.94	24.91	0.06	0.33
9.0	-1.63	31.05	78.1	0.99	24.97	0.07	0.36
10.0	-1.65	31.19	77.2	1.04	25.08	0.07	0.39
12.0	-1.65	31.27	72.1	1.31	25.15	0.07	0.44
14.0	-1.66	31.41	71.0	1.37	25.26	0.07	0.50



STATION Y3-1 CAST # 87013 DATE : 14:09 MDT ON 07/04/ 87
WATER DEPTH 17.6 M ICE THICKNESS 1.2 M INSTRUMENT : APPL MICROSYS CTD
LAT : 70 5.10 N LONG : 131 32.90 W

STATION	LAT	LONG	DATE
Y4-1	70 22.4 N	131 54.7 W	15:04 MDT ON 07/04/ 87

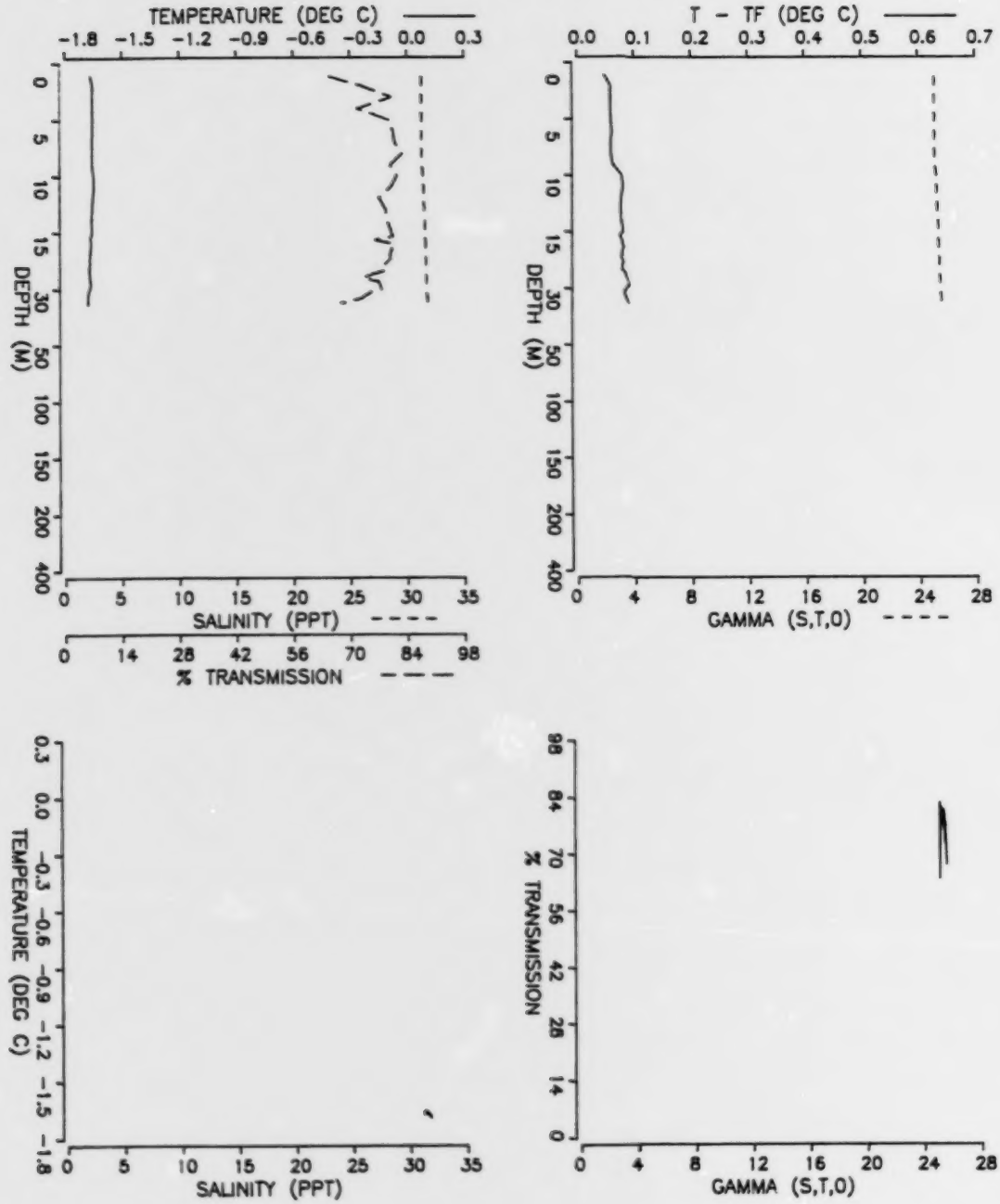
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-1.57	31.13	76.2	1.09	25.03	0.13	0.03
2.0	-1.60	31.13	79.6	0.91	25.03	0.11	0.06
3.0	-1.60	31.12	80.7	0.86	25.03	0.11	0.09
4.0	-1.60	31.12	81.0	0.84	25.03	0.11	0.12
5.0	-1.60	31.13	81.4	0.83	25.03	0.11	0.15
6.0	-1.61	31.13	81.3	0.83	25.03	0.10	0.18
7.0	-1.60	31.14	81.6	0.81	25.04	0.10	0.21
8.0	-1.61	31.16	81.8	0.80	25.05	0.10	0.24
9.0	-1.61	31.16	81.8	0.80	25.06	0.10	0.26
10.0	-1.61	31.17	81.9	0.80	25.06	0.10	0.29
12.0	-1.63	31.53	81.8	0.80	25.36	0.10	0.35
14.0	-1.66	31.71	82.5	0.77	25.51	0.08	0.40
16.0	-1.66	31.75	81.4	0.82	25.53	0.09	0.45
18.0	-1.66	31.76	78.8	0.95	25.54	0.09	0.50
20.0	-1.68	31.78	80.9	0.85	25.56	0.08	0.55
22.0	-1.68	31.80	78.1	0.99	25.58	0.08	0.60
24.0	-1.69	31.81	79.9	0.90	25.59	0.07	0.65
26.0	-1.68	31.83	79.1	0.94	25.60	0.08	0.69
28.0	-1.69	31.84	75.9	1.10	25.61	0.08	0.74
30.0	-1.69	31.86	75.0	1.15	25.62	0.08	0.79
33.0	-1.69	32.00	64.4	1.76	25.74	0.08	0.86



STATION Y4-1 CAST # 87014 DATE : 15:04 MDT ON 07/04/ 87
WATER DEPTH 35.0 M ICE THICKNESS 0.3 M INSTRUMENT : APPL MICROSYS CTD
LAT : 70 22.40 N LONG : 131 54.70 W

STATION	LAT	LONG	DATE
Y5-1	70 28.7 N	131 55.6 W	16:20 MDT ON 07/04/ 87

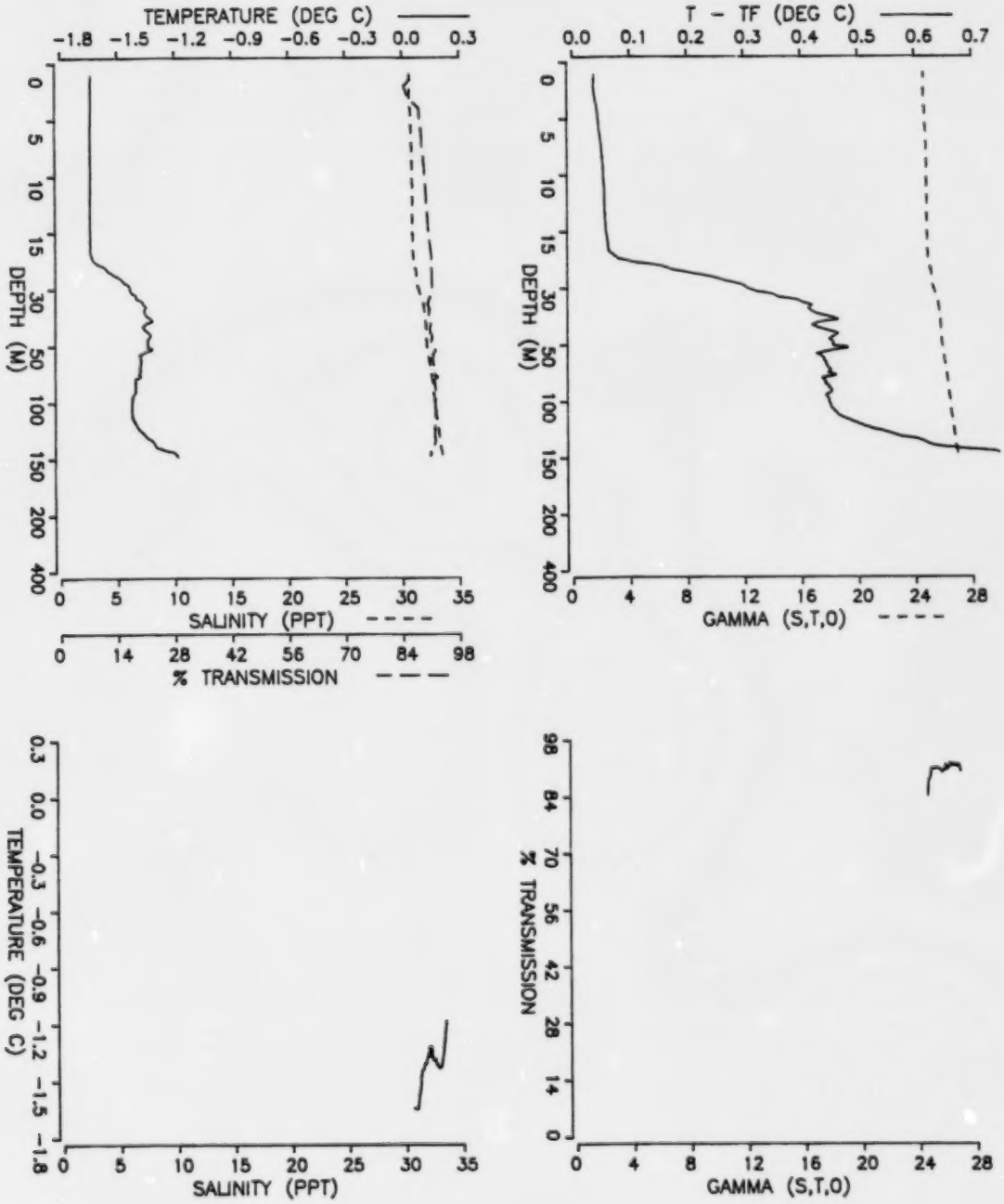
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-1.66	31.30	63.8	1.80	25.17	0.05	0.03
2.0	-1.65	31.28	72.9	1.26	25.16	0.06	0.06
3.0	-1.65	31.29	80.1	0.89	25.16	0.06	0.08
4.0	-1.66	31.28	71.9	1.32	25.16	0.06	0.11
5.0	-1.66	31.28	79.6	0.91	25.16	0.06	0.14
6.0	-1.66	31.30	80.6	0.86	25.17	0.06	0.17
7.0	-1.66	31.29	81.0	0.84	25.16	0.06	0.20
8.0	-1.66	31.29	82.9	0.75	25.16	0.06	0.23
9.0	-1.66	31.32	79.9	0.90	25.19	0.06	0.25
10.0	-1.65	31.42	81.5	0.82	25.26	0.08	0.28
12.0	-1.65	31.48	77.2	1.04	25.32	0.08	0.34
14.0	-1.66	31.57	79.2	0.93	25.39	0.08	0.39
16.0	-1.67	31.60	80.6	0.86	25.41	0.07	0.44
18.0	-1.66	31.62	80.9	0.85	25.43	0.08	0.49
20.0	-1.67	31.64	80.0	0.89	25.44	0.08	0.54
22.0	-1.67	31.65	79.9	0.90	25.46	0.08	0.59
24.0	-1.67	31.67	77.9	1.00	25.47	0.08	0.64
26.0	-1.67	31.68	75.5	1.13	25.48	0.08	0.69
28.0	-1.67	31.72	77.1	1.04	25.51	0.09	0.74
30.0	-1.67	31.75	77.8	1.00	25.54	0.09	0.79
35.0	-1.68	31.87	67.6	1.56	25.63	0.09	0.91



STATION Y5-1 CAST # 87015 DATE : 16:20 MDT ON 07/04/ 87
WATER DEPTH 34.0 M ICE THICKNESS 0.3 M INSTRUMENT : APPL MICROSYS CTD
LAT : 70 28.70 N LONG : 131 55.60 W

STATION	LAT	LONG	DATE
47-1	70 46.0 N	127 18.9 W	16:11 MST ON 30/03/ 87

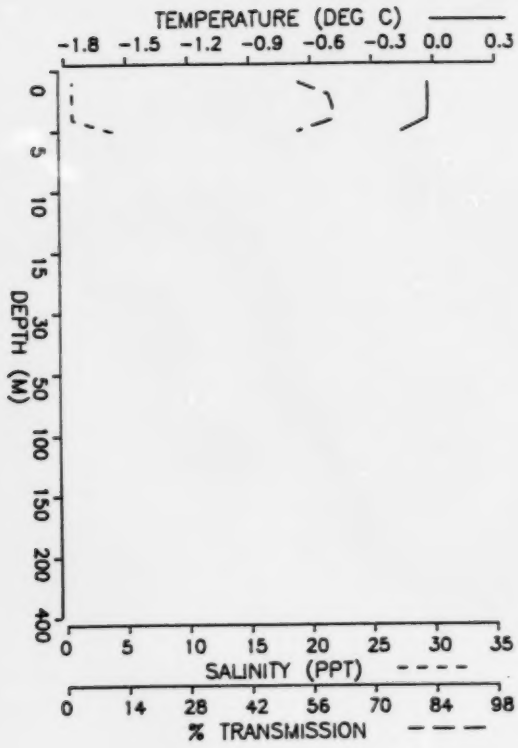
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-1.64	30.67	87.0	0.56	24.66	0.04	0.03
2.0	-1.64	30.67	84.5	0.67	24.66	0.04	0.07
3.0	-1.64	30.67	85.6	0.62	24.66	0.04	0.10
4.0	-1.64	30.75	88.3	0.50	24.72	0.04	0.13
5.0	-1.64	30.79	88.4	0.49	24.76	0.05	0.16
6.0	-1.64	30.83	88.8	0.48	24.79	0.05	0.20
7.0	-1.64	30.86	88.8	0.47	24.82	0.05	0.23
8.0	-1.64	30.88	89.2	0.46	24.83	0.05	0.26
9.0	-1.64	30.90	89.4	0.45	24.84	0.05	0.29
10.0	-1.64	30.90	89.6	0.44	24.85	0.05	0.32
12.0	-1.64	30.92	89.9	0.43	24.86	0.06	0.38
14.0	-1.64	30.93	90.3	0.41	24.87	0.06	0.45
16.0	-1.64	30.94	90.6	0.40	24.88	0.06	0.51
18.0	-1.64	30.95	90.8	0.39	24.88	0.06	0.57
20.0	-1.64	30.95	91.0	0.38	24.89	0.06	0.63
22.0	-1.63	30.99	91.2	0.37	24.92	0.08	0.69
24.0	-1.57	31.16	91.2	0.37	25.06	0.15	0.75
26.0	-1.52	31.26	91.2	0.37	25.14	0.21	0.81
28.0	-1.47	31.32	91.3	0.37	25.18	0.27	0.87
30.0	-1.44	31.47	91.3	0.37	25.30	0.31	0.92
35.0	-1.37	31.87	90.2	0.41	25.62	0.40	1.05
40.0	-1.33	31.99	90.6	0.39	25.73	0.45	1.16
45.0	-1.34	32.10	90.8	0.39	25.81	0.45	1.28
50.0	-1.34	32.17	91.4	0.36	25.87	0.45	1.38
55.0	-1.35	32.25	91.9	0.34	25.94	0.45	1.49
60.0	-1.38	32.34	91.4	0.36	26.01	0.44	1.59
65.0	-1.38	32.40	91.5	0.35	26.06	0.44	1.69
70.0	-1.38	32.48	91.7	0.35	26.12	0.45	1.79
75.0	-1.39	32.55	91.9	0.34	26.18	0.45	1.88
80.0	-1.41	32.64	91.8	0.34	26.25	0.44	1.97
85.0	-1.41	32.68	91.9	0.34	26.28	0.44	2.06
90.0	-1.41	32.73	92.3	0.32	26.33	0.45	2.14
95.0	-1.42	32.80	92.0	0.33	26.39	0.44	2.23
100.0	-1.43	32.86	92.0	0.33	26.43	0.45	2.31
110.0	-1.42	32.94	92.1	0.33	26.50	0.46	2.46
120.0	-1.40	33.11	92.1	0.33	26.64	0.50	2.61
130.0	-1.35	33.23	91.8	0.34	26.73	0.57	2.75
140.0	-1.29	33.37	92.0	0.33	26.84	0.65	2.87
147.0	-1.18	33.50	90.5	0.40	26.94	0.76	2.95

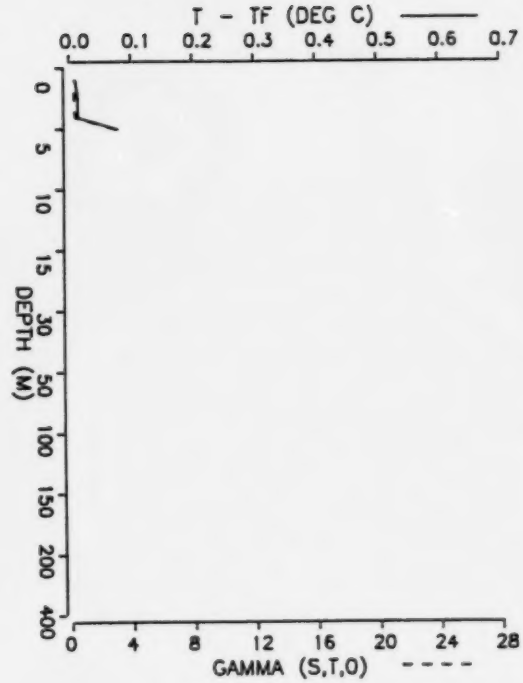


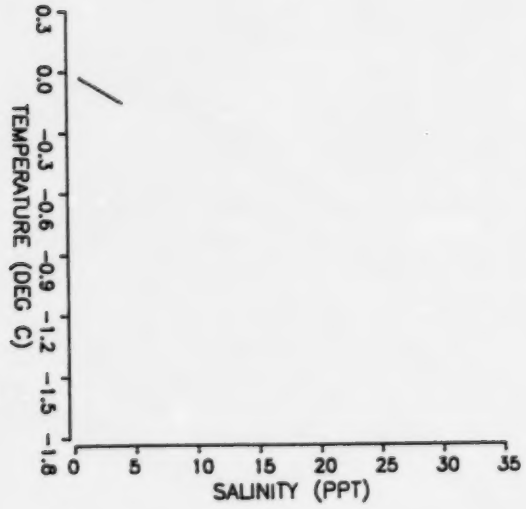
STATION 47-1 CAST # 87001 DATE : 16:11 MST ON 30/03/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 70 45.97 N LONG : 127 18.91 W

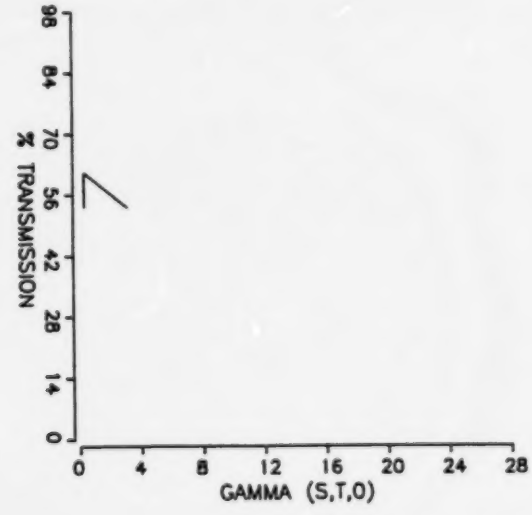
STATION	LAT	LONG	DATE
2-2	69 39.7 N	133 18.6 W	10:03 MDT ON 27/04/ 87

DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.03	0.64	53.4	2.51	0.36	0.01	0.27
2.0	-0.02	0.63	60.2	2.03	0.35	0.01	0.54
3.0	-0.02	0.63	61.1	1.97	0.36	0.01	0.82
4.0	-0.03	0.68	61.3	1.95	0.40	0.01	1.09
5.0	-0.15	4.15	53.0	2.54	3.22	0.08	1.35





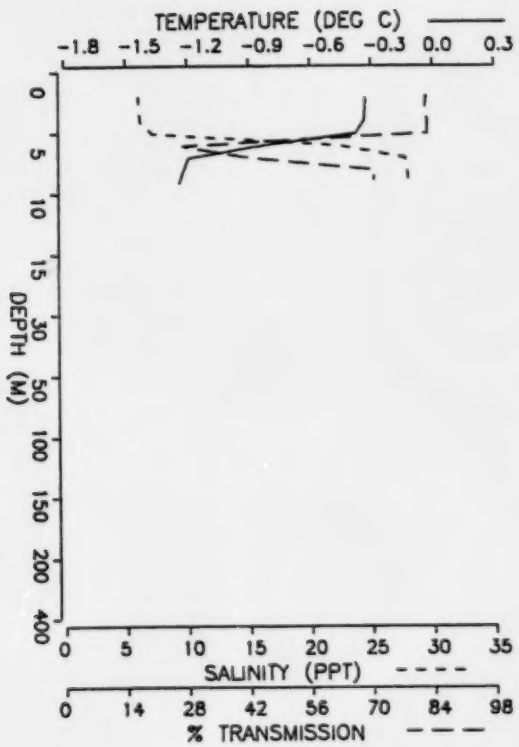


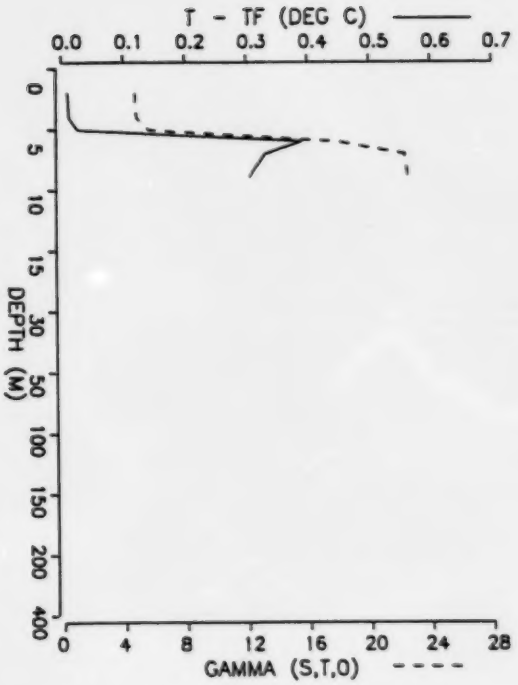


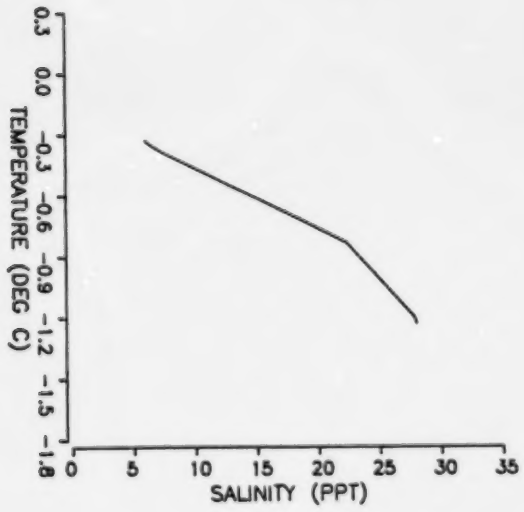
STATION 2-2 CAST # 87027 DATE : 10:03 MDT ON 27/04/ 87
WATER DEPTH 6.5 M ICE THICKNESS 1.8 M INSTRUMENT : APPL MICROSYS CTD
LAT : 69 39.70 N LONG : 133 18.60 W

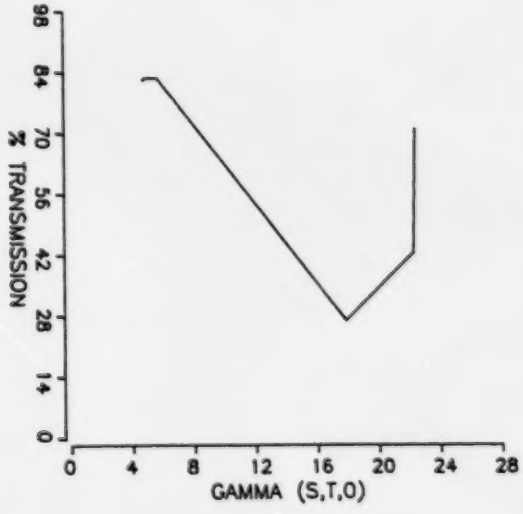
STATION	LAT	LONG	DATE
3-2	69 47.1 N	133 20.8 W	11:44 MDT ON 27/04/ 87

DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
2.0	-0.32	6.11	82.5	0.77	4.79	0.01	0.46
3.0	-0.33	6.13	82.3	0.78	4.81	0.01	0.68
4.0	-0.33	6.24	82.8	0.75	4.90	0.01	0.91
5.0	-0.37	7.25	82.8	0.75	5.72	0.03	1.13
6.0	-0.83	22.40	27.1	5.22	17.95	0.39	1.29
7.0	-1.19	27.84	42.5	3.42	22.36	0.33	1.37
8.0	-1.21	27.99	70.9	1.37	22.47	0.32	1.42
9.0	-1.23	28.11	70.8	1.38	22.57	0.31	1.48





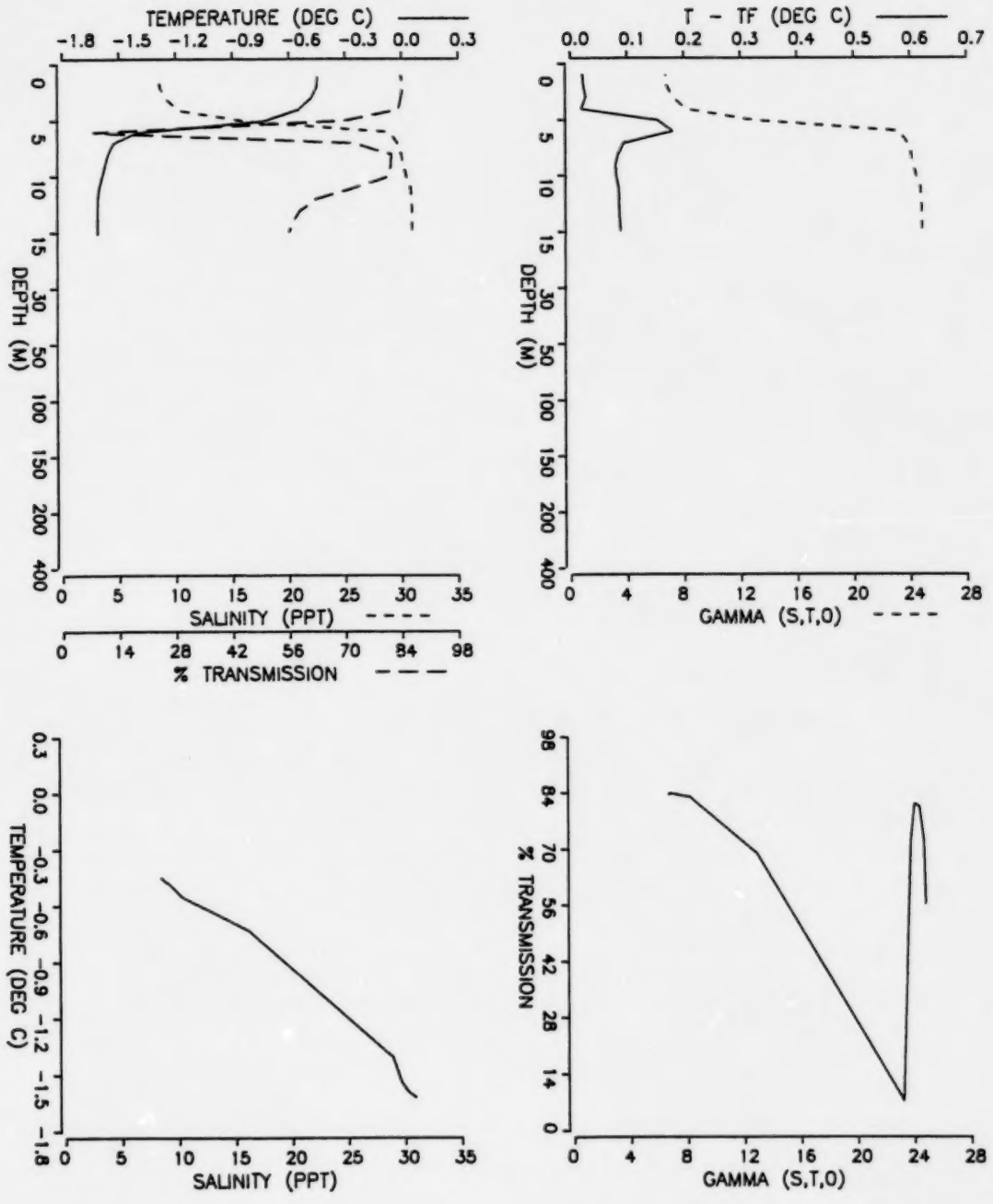




STATION 3-2 CAST # 87028 DATE : 11:44 MDT ON 27/04/ 87
WATER DEPTH 11.0 M ICE THICKNESS 2.0 M INSTRUMENT : APPL MICROSYS CTD
LAT : 69 47.10 N LONG : 133 20.80 W

STATION	LAT	LONG	DATE
4-2	69 53.7 N	133 24.2 W	12:52 MDT ON 27/04/ 87

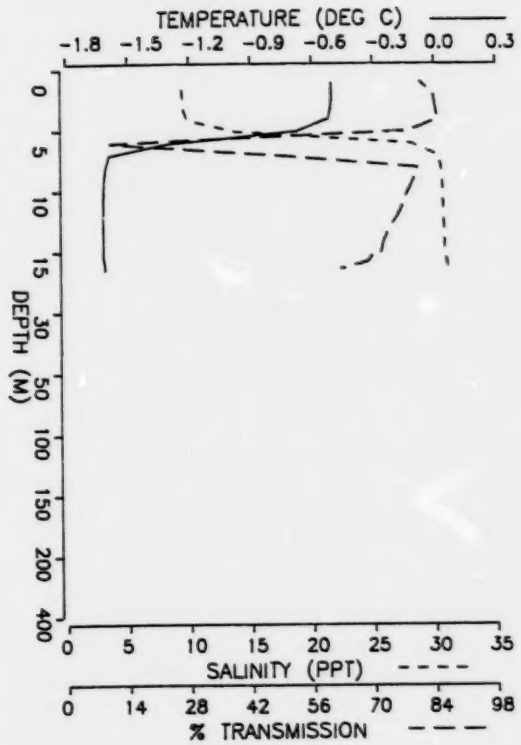
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.44	8.55	83.8	0.70	6.76	0.02	0.21
2.0	-0.45	8.66	84.2	0.69	6.86	0.02	0.42
3.0	-0.48	9.25	83.8	0.70	7.33	0.03	0.62
4.0	-0.55	10.37	83.2	0.73	8.23	0.02	0.82
5.0	-0.73	16.24	69.1	1.48	12.98	0.15	0.99
6.0	-1.40	28.94	7.7	10.26	23.25	0.18	1.09
7.0	-1.53	29.66	72.2	1.30	23.84	0.10	1.13
8.0	-1.56	29.98	81.4	0.82	24.09	0.08	1.17
9.0	-1.57	30.17	81.3	0.83	24.25	0.08	1.21
10.0	-1.59	30.43	80.7	0.86	24.46	0.08	1.24
12.0	-1.61	30.88	63.0	1.85	24.83	0.09	1.31
14.0	-1.61	30.92	57.2	2.23	24.86	0.09	1.37
15.0	-1.61	30.92	56.1	2.31	24.86	0.09	1.40

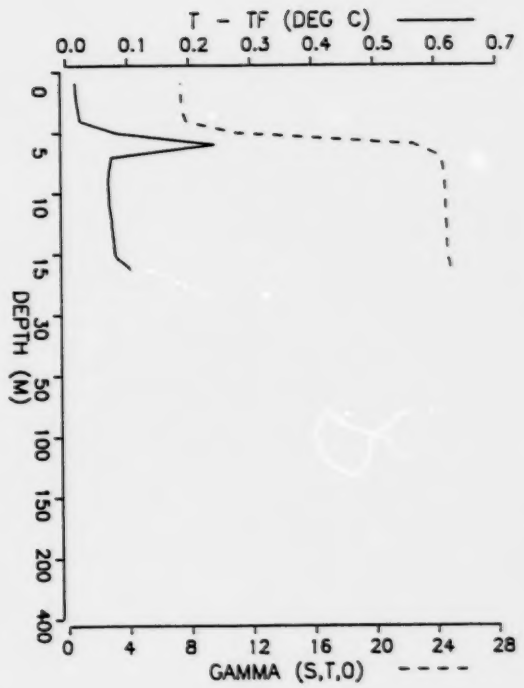


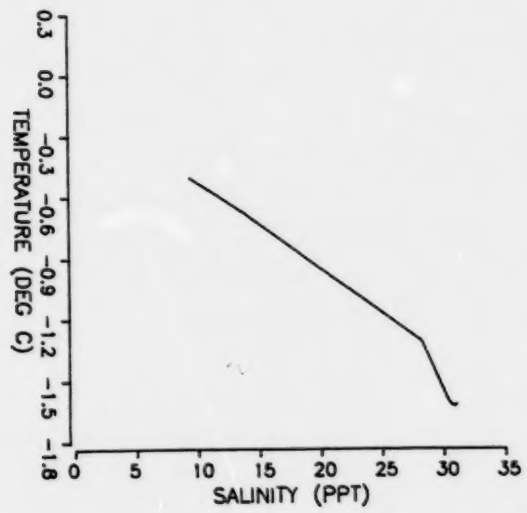
STATION 4-2 CAST # 87029 DATE : 12:52 MDT ON 27/04/ 87
WATER DEPTH 17.0 M ICE THICKNESS 1.8 M INSTRUMENT : APPL MICROSYS CTD
LAT : 69 53.70 N LONG : 133 24.20 W

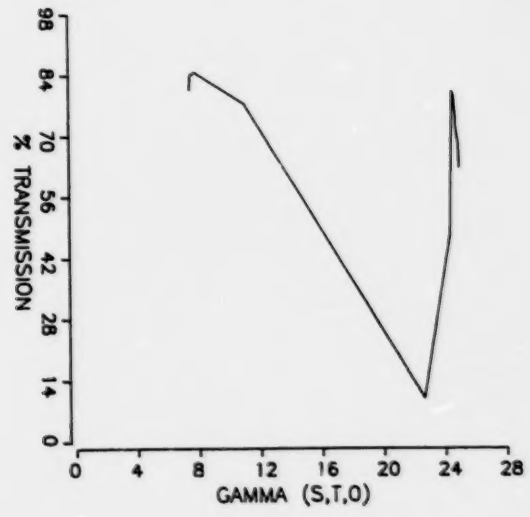
STATION	LAT	LONG	DATE
4A-2	69 57.9 N	133 23.7 W	18:24 MDT ON 27/04/ 87

DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.50	9.46	80.9	0.85	7.50	0.02	0.20
2.0	-0.50	9.49	83.8	0.71	7.52	0.02	0.40
3.0	-0.50	9.55	84.2	0.69	7.57	0.02	0.60
4.0	-0.51	9.87	84.9	0.65	7.83	0.02	0.80
5.0	-0.67	13.83	77.7	1.01	11.03	0.08	0.98
6.0	-1.30	28.22	10.1	9.19	22.66	0.24	1.09
7.0	-1.59	30.36	47.5	2.98	24.40	0.07	1.14
8.0	-1.61	30.58	80.2	0.88	24.58	0.07	1.17
9.0	-1.61	30.67	79.2	0.93	24.66	0.07	1.20
10.0	-1.62	30.72	77.9	1.00	24.70	0.07	1.24
12.0	-1.62	30.78	75.6	1.12	24.75	0.07	1.30
14.0	-1.62	30.83	72.5	1.29	24.79	0.08	1.37
16.0	-1.62	30.95	69.6	1.45	24.88	0.08	1.43
18.0	-1.61	31.07	66.1	1.66	24.98	0.10	1.49
19.0	-1.61	31.11	62.3	1.89	25.02	0.10	1.52





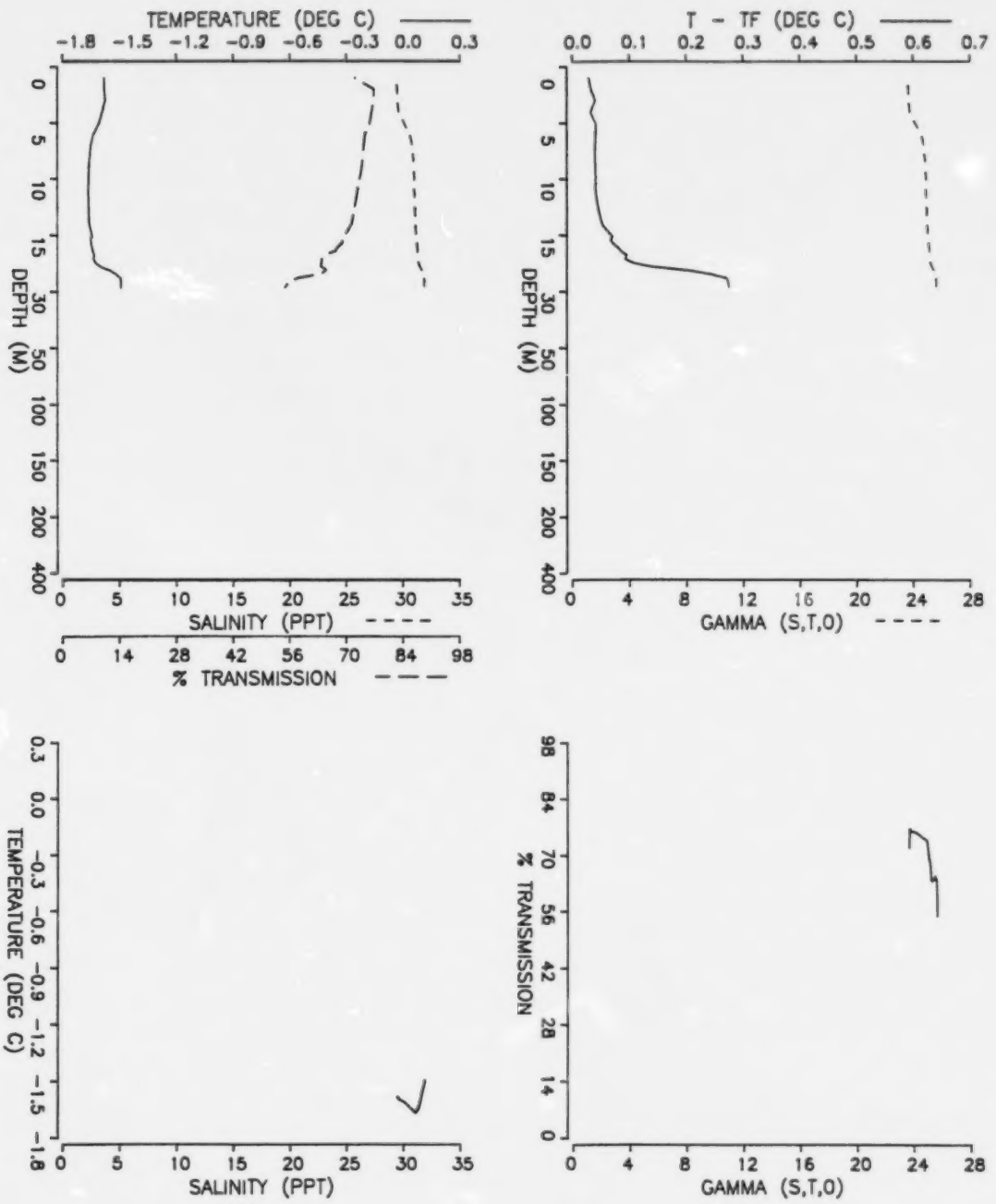




STATION 4A-2 CAST # 87026 DATE : 18:24 MDT ON 27/04/ 87
WATER DEPTH 21.0 M ICE THICKNESS 1.8 M INSTRUMENT : APPL MICROSYS CTD
LAT : 69 57.90 N LONG : 133 23.70 W

STATION	LAT	LONG		DATE
5-2	70 1.1 N	133 26.0 W	14:15 MDT ON	27/04/ 87

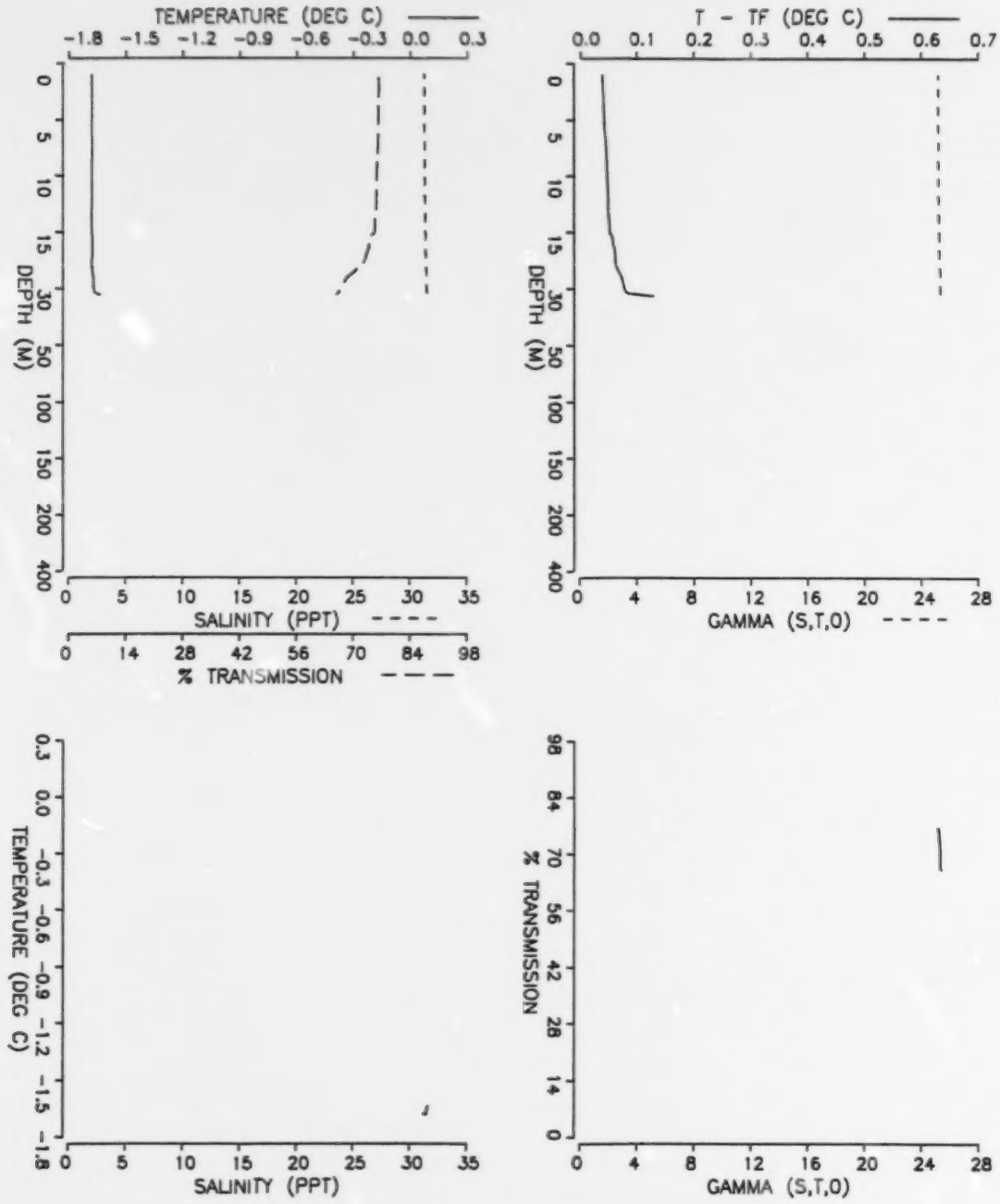
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-1.58	29.49	72.2	1.30	23.70	0.03	0.04
2.0	-1.58	29.53	76.8	1.06	23.73	0.03	0.08
3.0	-1.57	29.56	76.8	1.05	23.75	0.04	0.13
4.0	-1.59	29.67	76.3	1.08	23.84	0.03	0.17
5.0	-1.61	30.13	75.9	1.10	24.22	0.04	0.21
6.0	-1.64	30.64	74.7	1.17	24.63	0.04	0.24
7.0	-1.65	30.84	74.3	1.19	24.80	0.04	0.27
8.0	-1.66	30.94	74.2	1.20	24.88	0.04	0.31
9.0	-1.66	31.00	73.9	1.21	24.93	0.04	0.34
10.0	-1.66	31.03	73.3	1.24	24.95	0.04	0.37
12.0	-1.66	31.07	72.5	1.29	24.99	0.04	0.43
14.0	-1.66	31.13	71.4	1.35	25.04	0.05	0.49
16.0	-1.65	31.20	69.0	1.48	25.09	0.07	0.54
18.0	-1.64	31.29	68.0	1.54	25.17	0.08	0.60
20.0	-1.63	31.33	65.1	1.72	25.20	0.10	0.66
22.0	-1.63	31.40	64.0	1.78	25.25	0.11	0.71
24.0	-1.55	31.72	65.2	1.71	25.51	0.21	0.77
26.0	-1.49	31.90	58.5	2.14	25.66	0.27	0.81
28.0	-1.49	31.91	55.6	2.35	25.66	0.28	0.86
29.0	-1.49	31.91	54.8	2.40	25.66	0.28	0.88


TEMPERATURE (DEG C)
-1.8 -1.5 -1.2 -0.9 -0.6 -0.3 0.0 0.3
DEPTH (M)
0 5 10 15 30 50 100 150 200 400
0 5 10 15 20 25 30 35
SALINITY (PPT)
0 14 28 42 56 70 84 98
% TRANSMISSION
T - TF (DEG C)
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7
0 4 8 12 16 20 24 28
GAMMA (S,T,0)
TEMPERATURE (DEG C)
SALINITY (PPT)
% TRANSMISSION
GAMMA (S,T,0)

STATION 5-2 CAST # 87023 DATE : 14:15 MDT ON 27/04/ 87
WATER DEPTH 32.0 M ICE THICKNESS 2.0 M INSTRUMENT : APPL MICROSYS CTD
LAT : 70 1.10 N LONG : 133 26.00 W

STATION	LAT	LONG	DATE
6-2	70 7.5 N	133 28.0 W	15:36 MDT ON 27/04/ 87

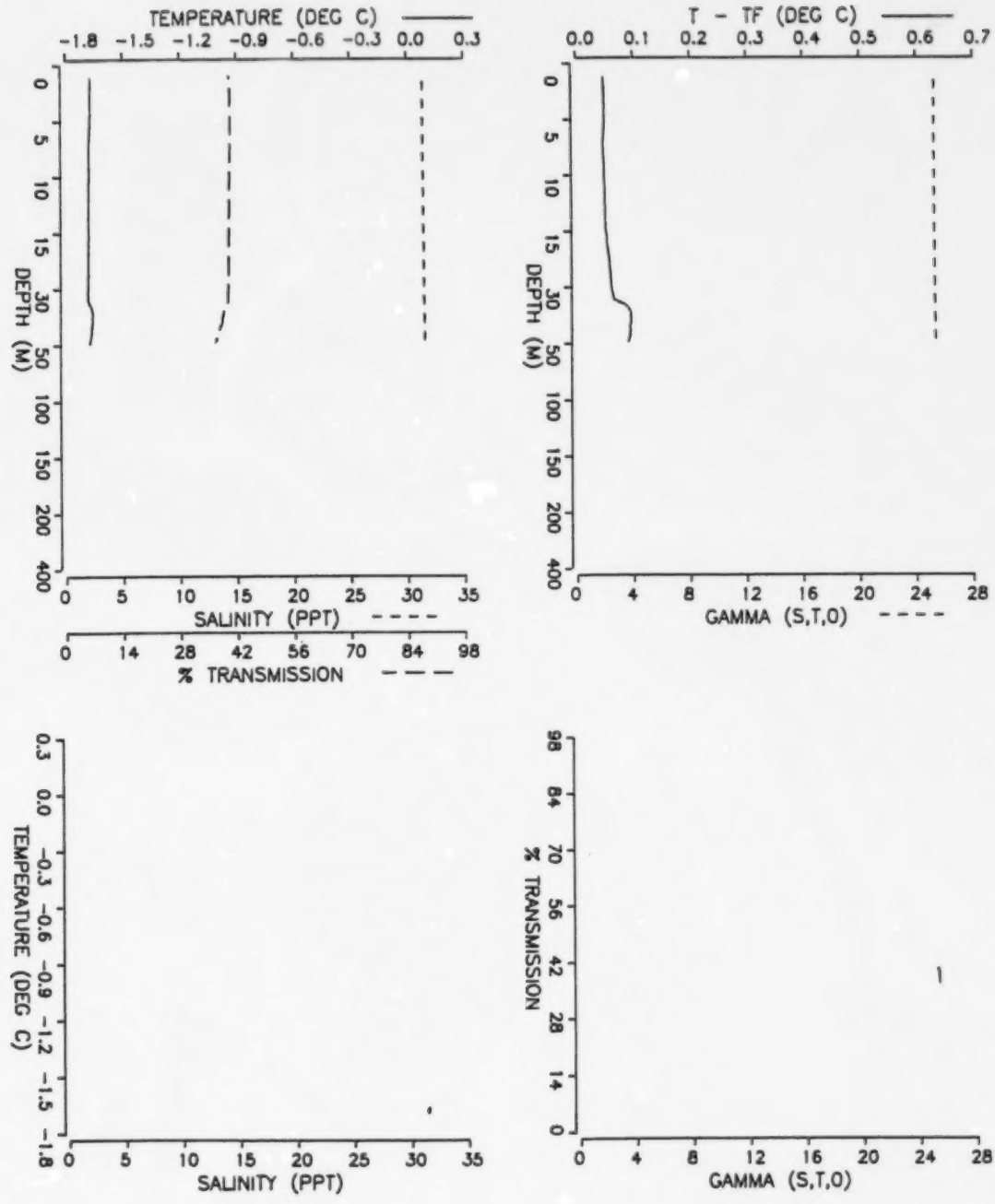
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-1.67	31.36	76.5	1.07	25.22	0.04	0.03
2.0	-1.67	31.36	76.6	1.06	25.22	0.04	0.06
3.0	-1.67	31.36	76.5	1.07	25.22	0.04	0.08
4.0	-1.67	31.36	76.4	1.07	25.22	0.04	0.11
5.0	-1.67	31.36	76.4	1.08	25.22	0.04	0.14
6.0	-1.67	31.36	76.4	1.08	25.22	0.05	0.17
7.0	-1.67	31.36	76.4	1.08	25.22	0.05	0.19
8.0	-1.67	31.36	76.2	1.08	25.22	0.05	0.22
9.0	-1.67	31.37	76.1	1.09	25.22	0.05	0.25
10.0	-1.67	31.37	76.0	1.10	25.23	0.05	0.28
12.0	-1.67	31.39	75.8	1.11	25.24	0.05	0.33
14.0	-1.67	31.40	75.6	1.12	25.25	0.05	0.39
16.0	-1.67	31.43	74.3	1.19	25.27	0.06	0.44
18.0	-1.67	31.43	74.2	1.20	25.28	0.06	0.50
20.0	-1.67	31.44	73.8	1.22	25.29	0.06	0.55
22.0	-1.67	31.47	73.2	1.25	25.31	0.06	0.60
24.0	-1.67	31.49	71.9	1.32	25.33	0.07	0.66
26.0	-1.67	31.50	69.7	1.45	25.33	0.07	0.71
28.0	-1.67	31.50	68.1	1.53	25.34	0.08	0.76
30.0	-1.67	31.51	67.2	1.59	25.34	0.08	0.82
32.0	-1.63	31.72	66.0	1.66	25.51	0.13	0.87



STATION 6-2 CAST # 87024 DATE : 15:36 MDT ON 27/04/ 87
WATER DEPTH 32.0 M ICE THICKNESS 1.9 M INSTRUMENT : APPL MICROSYS CTD
LAT : 70 7.50 N LONG : 133 28.00 W

STATION	LAT	LONG	DATE
7-2	70 15.2 N	133 36.5 W	17:09 MDT ON 27/04/ 87

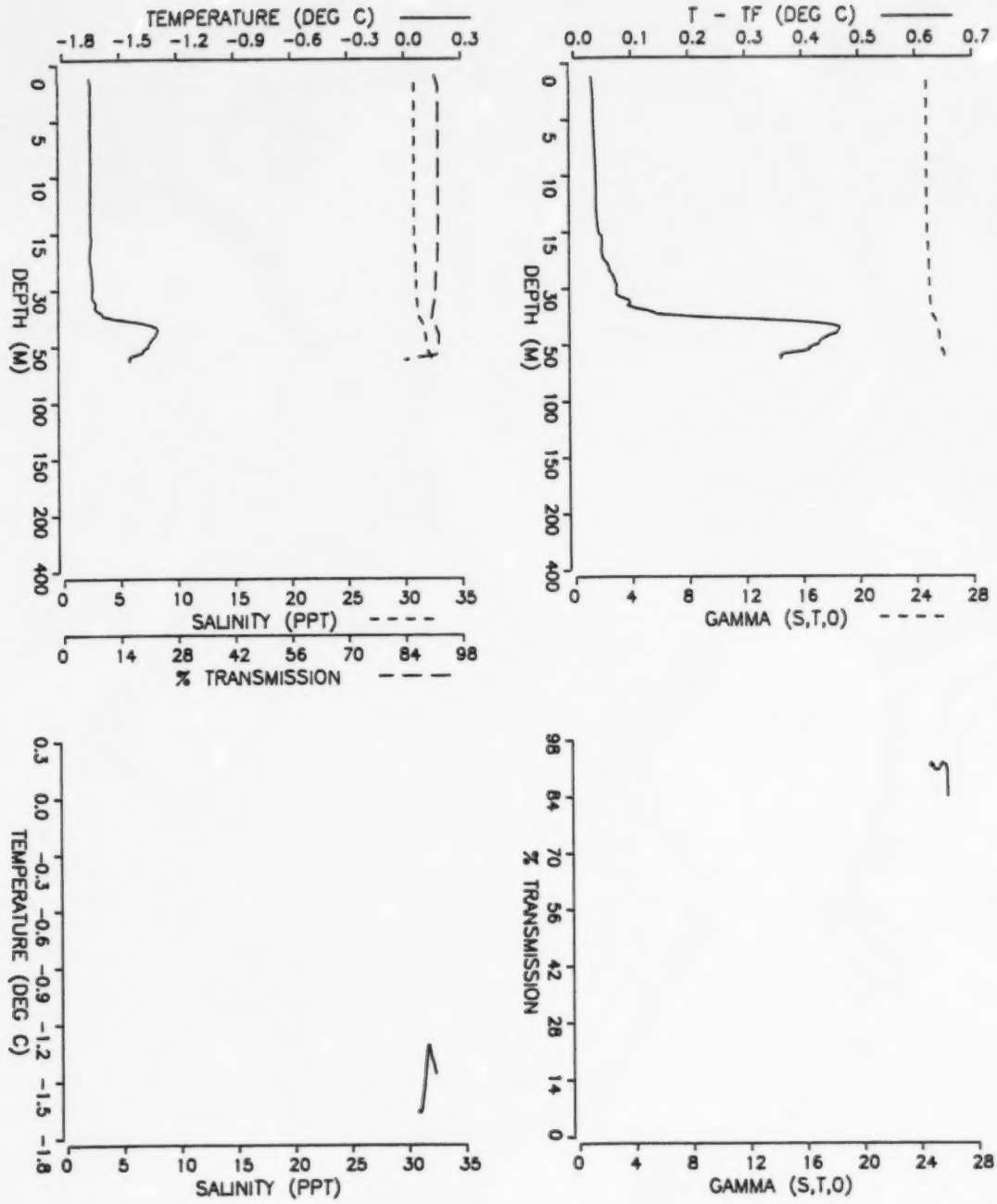
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-1.67	31.42	40.3	3.63	25.27	0.05	0.03
2.0	-1.67	31.42	40.4	3.62	25.27	0.05	0.05
3.0	-1.67	31.42	40.5	3.62	25.27	0.05	0.08
4.0	-1.67	31.42	40.5	3.62	25.27	0.05	0.11
5.0	-1.67	31.42	40.5	3.61	25.27	0.05	0.14
6.0	-1.67	31.43	40.5	3.62	25.28	0.05	0.16
7.0	-1.68	31.43	40.5	3.62	25.28	0.05	0.19
8.0	-1.68	31.44	40.5	3.62	25.28	0.05	0.22
9.0	-1.68	31.44	40.4	3.62	25.29	0.05	0.24
10.0	-1.68	31.45	40.4	3.63	25.29	0.05	0.27
12.0	-1.68	31.46	40.3	3.64	25.30	0.05	0.33
14.0	-1.68	31.47	40.2	3.64	25.31	0.05	0.38
16.0	-1.68	31.47	40.1	3.65	25.31	0.05	0.43
18.0	-1.68	31.48	40.2	3.65	25.31	0.05	0.49
20.0	-1.68	31.48	40.1	3.65	25.31	0.06	0.54
22.0	-1.68	31.48	40.1	3.65	25.31	0.06	0.59
24.0	-1.68	31.48	40.1	3.65	25.32	0.06	0.65
26.0	-1.68	31.48	40.1	3.65	25.32	0.06	0.70
28.0	-1.68	31.48	40.0	3.66	25.32	0.06	0.75
30.0	-1.68	31.49	40.0	3.66	25.32	0.06	0.81
35.0	-1.68	31.51	39.8	3.69	25.34	0.07	0.94
40.0	-1.66	31.52	38.6	3.81	25.35	0.09	1.07
45.0	-1.66	31.54	37.8	3.90	25.37	0.09	1.20
49.0	-1.67	31.56	36.6	4.02	25.38	0.09	1.31



STATION 7-2 CAST # 87025 DATE : 17:09 MDT ON 27/04/ 87
WATER DEPTH 53.0 M ICE THICKNESS 0.7 M INSTRUMENT : APPL MICROSYS CTD
LAT : 70 15.20 N LONG : 133 36.50 W

STATION	LAT	LONG	DATE
9-2	70 40.0 N	134 13.5 W	15:02 MDT ON 23/04/ 87

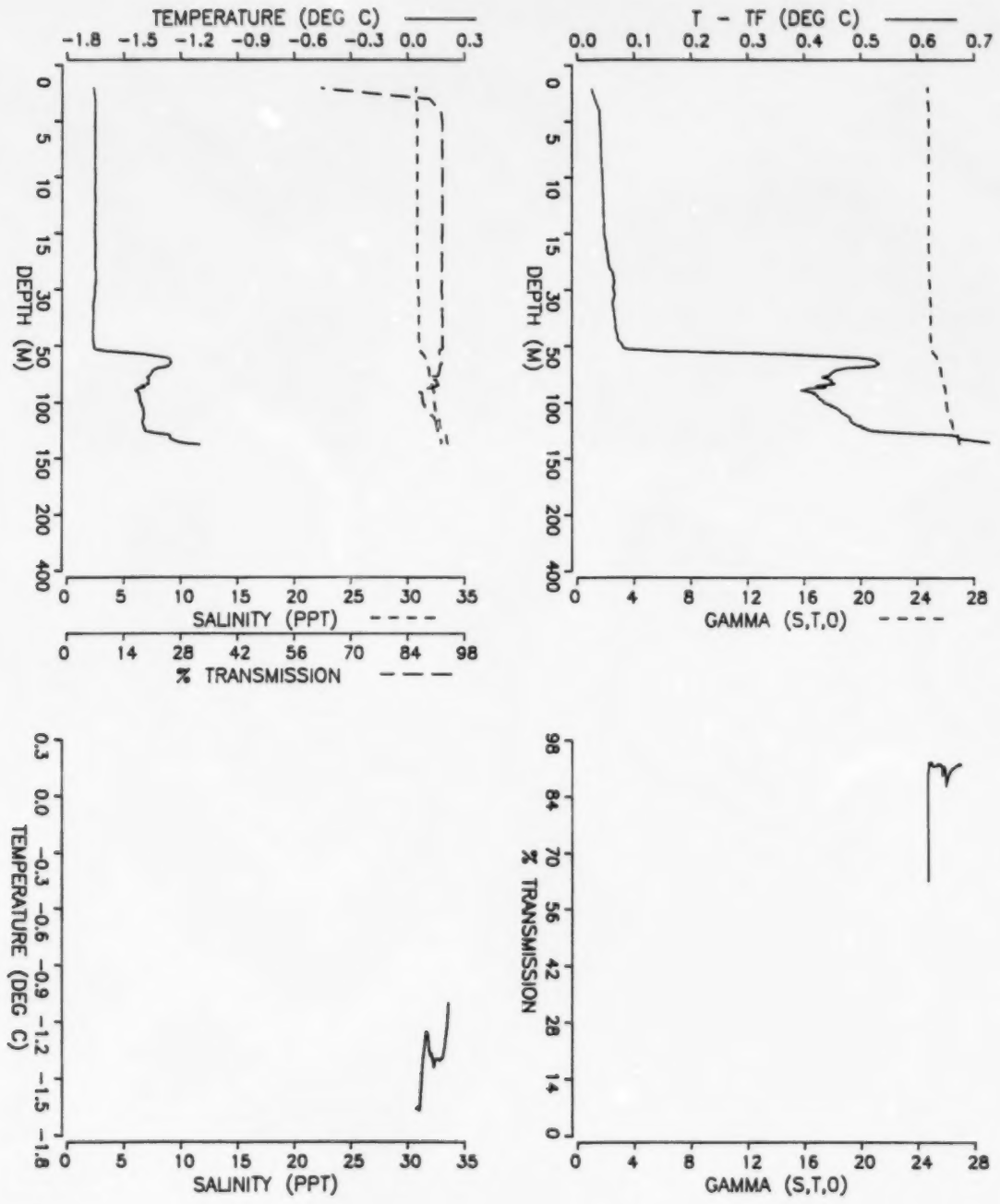
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-1.66	30.86	91.5	0.35	24.81	0.03	0.03
2.0	-1.66	30.86	92.3	0.32	24.81	0.03	0.06
3.0	-1.66	30.86	92.3	0.32	24.81	0.03	0.09
4.0	-1.66	30.85	92.3	0.32	24.81	0.03	0.13
5.0	-1.66	30.86	92.3	0.32	24.81	0.03	0.16
6.0	-1.66	30.86	92.3	0.32	24.81	0.03	0.19
7.0	-1.66	30.86	92.3	0.32	24.81	0.04	0.22
8.0	-1.66	30.86	92.3	0.32	24.81	0.04	0.25
9.0	-1.66	30.86	92.3	0.32	24.81	0.04	0.28
10.0	-1.66	30.86	92.2	0.32	24.81	0.04	0.32
12.0	-1.66	30.86	92.3	0.32	24.81	0.04	0.38
14.0	-1.66	30.86	92.2	0.32	24.81	0.04	0.44
16.0	-1.65	30.89	92.2	0.33	24.84	0.05	0.51
18.0	-1.66	30.93	92.1	0.33	24.87	0.05	0.57
20.0	-1.66	30.97	92.1	0.33	24.90	0.05	0.63
22.0	-1.66	31.00	92.1	0.33	24.93	0.05	0.69
24.0	-1.65	31.01	91.8	0.34	24.94	0.06	0.75
26.0	-1.65	31.03	91.7	0.35	24.95	0.07	0.81
28.0	-1.65	31.04	91.6	0.35	24.96	0.07	0.87
30.0	-1.65	31.06	91.6	0.35	24.97	0.07	0.93
35.0	-1.63	31.12	91.2	0.37	25.02	0.10	1.08
40.0	-1.53	31.36	90.5	0.40	25.22	0.21	1.23
45.0	-1.31	31.80	92.2	0.32	25.57	0.46	1.35
50.0	-1.36	31.92	92.3	0.32	25.67	0.43	1.47
55.0	-1.39	32.11	92.0	0.33	25.82	0.41	1.59
60.0	-1.45	32.33	85.5	0.63	26.00	0.36	1.69
62.0	-1.45	32.33	83.8	0.71	26.00	0.36	1.73



STATION 9-2 CAST # 87021 DATE : 15:02 MDT ON 23/04/ 87
WATER DEPTH 60.0 M ICE THICKNESS 1.2 M INSTRUMENT : APPL MICROSYS CTD
LAT : 70 40.00 N LONG : 134 13.50 W

STATION	LAT	LONG	DATE
10-2	70 58.2 N	134 26.6 W	14:06 MDT ON 25/04/ 87

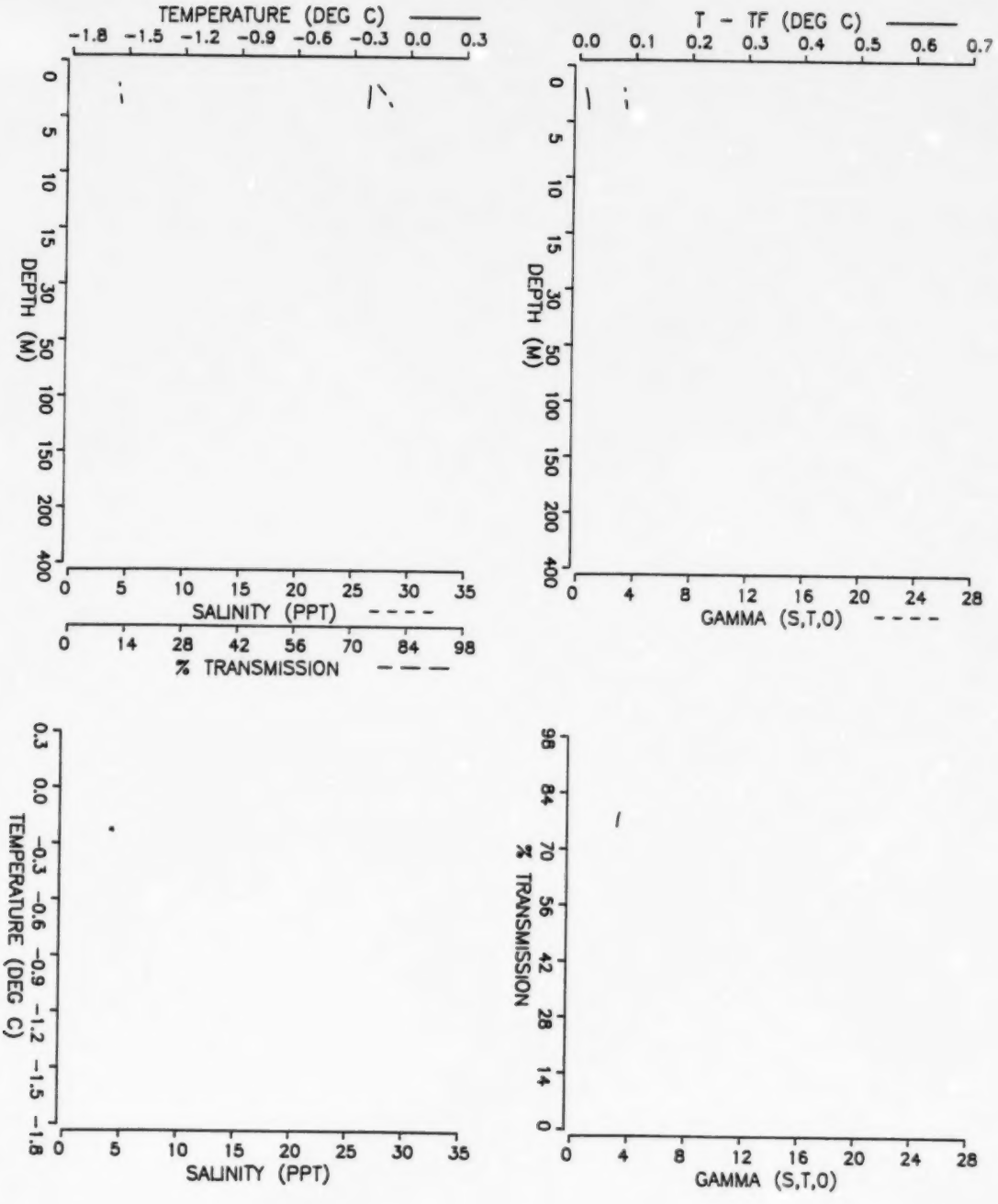
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
2.0	-1.66	30.80	63.0	1.85	24.77	0.03	0.06
3.0	-1.65	30.77	89.5	0.45	24.74	0.03	0.10
4.0	-1.65	30.88	92.2	0.33	24.83	0.04	0.13
5.0	-1.65	30.88	92.6	0.31	24.83	0.04	0.16
6.0	-1.65	30.88	92.6	0.31	24.83	0.04	0.19
7.0	-1.65	30.88	92.6	0.31	24.83	0.04	0.22
8.0	-1.65	30.88	92.7	0.30	24.83	0.04	0.25
9.0	-1.65	30.89	92.7	0.31	24.83	0.04	0.28
10.0	-1.65	30.88	92.6	0.31	24.83	0.04	0.32
12.0	-1.65	30.89	92.7	0.30	24.83	0.05	0.38
14.0	-1.65	30.89	92.6	0.31	24.84	0.05	0.44
16.0	-1.65	30.89	92.6	0.31	24.83	0.05	0.50
18.0	-1.65	30.88	92.6	0.31	24.83	0.05	0.57
20.0	-1.65	30.89	92.5	0.31	24.84	0.05	0.63
22.0	-1.65	30.89	92.5	0.31	24.84	0.05	0.69
24.0	-1.65	30.90	92.5	0.31	24.85	0.06	0.76
26.0	-1.65	30.93	92.5	0.31	24.87	0.06	0.82
28.0	-1.65	30.96	92.5	0.31	24.89	0.06	0.88
30.0	-1.65	30.98	92.3	0.32	24.91	0.06	0.94
35.0	-1.66	31.03	92.6	0.31	24.95	0.06	1.09
40.0	-1.66	31.03	92.6	0.31	24.95	0.07	1.24
45.0	-1.66	31.05	92.6	0.31	24.97	0.07	1.39
50.0	-1.66	31.07	92.6	0.31	24.99	0.08	1.54
55.0	-1.52	31.24	91.8	0.34	25.12	0.22	1.69
60.0	-1.27	31.60	92.0	0.34	25.41	0.50	1.83
65.0	-1.25	31.73	92.4	0.32	25.51	0.53	1.95
70.0	-1.33	31.91	92.0	0.33	25.66	0.47	2.07
75.0	-1.36	31.97	91.7	0.35	25.71	0.45	2.19
80.0	-1.37	32.10	91.1	0.37	25.81	0.45	2.30
85.0	-1.41	32.25	90.9	0.38	25.94	0.42	2.41
90.0	-1.43	32.34	86.9	0.56	26.01	0.41	2.51
95.0	-1.42	32.37	87.7	0.53	26.03	0.43	2.61
100.0	-1.41	32.39	87.9	0.52	26.05	0.44	2.71
110.0	-1.39	32.56	89.8	0.43	26.19	0.47	2.90
120.0	-1.40	32.93	91.2	0.37	26.49	0.50	3.07
130.0	-1.26	33.42	92.0	0.33	26.88	0.67	3.20
137.0	-1.10	33.63	92.2	0.33	27.05	0.85	3.28



STATION 10-2 CAST # 87022 DATE : 14:06 MDT ON 25/04/ 87
WATER DEPTH 133.0 M ICE THICKNESS 1.8 M INSTRUMENT : APPL MICROSYS CTD
LAT : 70 58.20 N LONG : 134 26.60 W

STATION	LAT	LONG	DATE
Y1-2	69 56.2 N	131 25.4 W	10:27 MDT ON 28/04/ 87

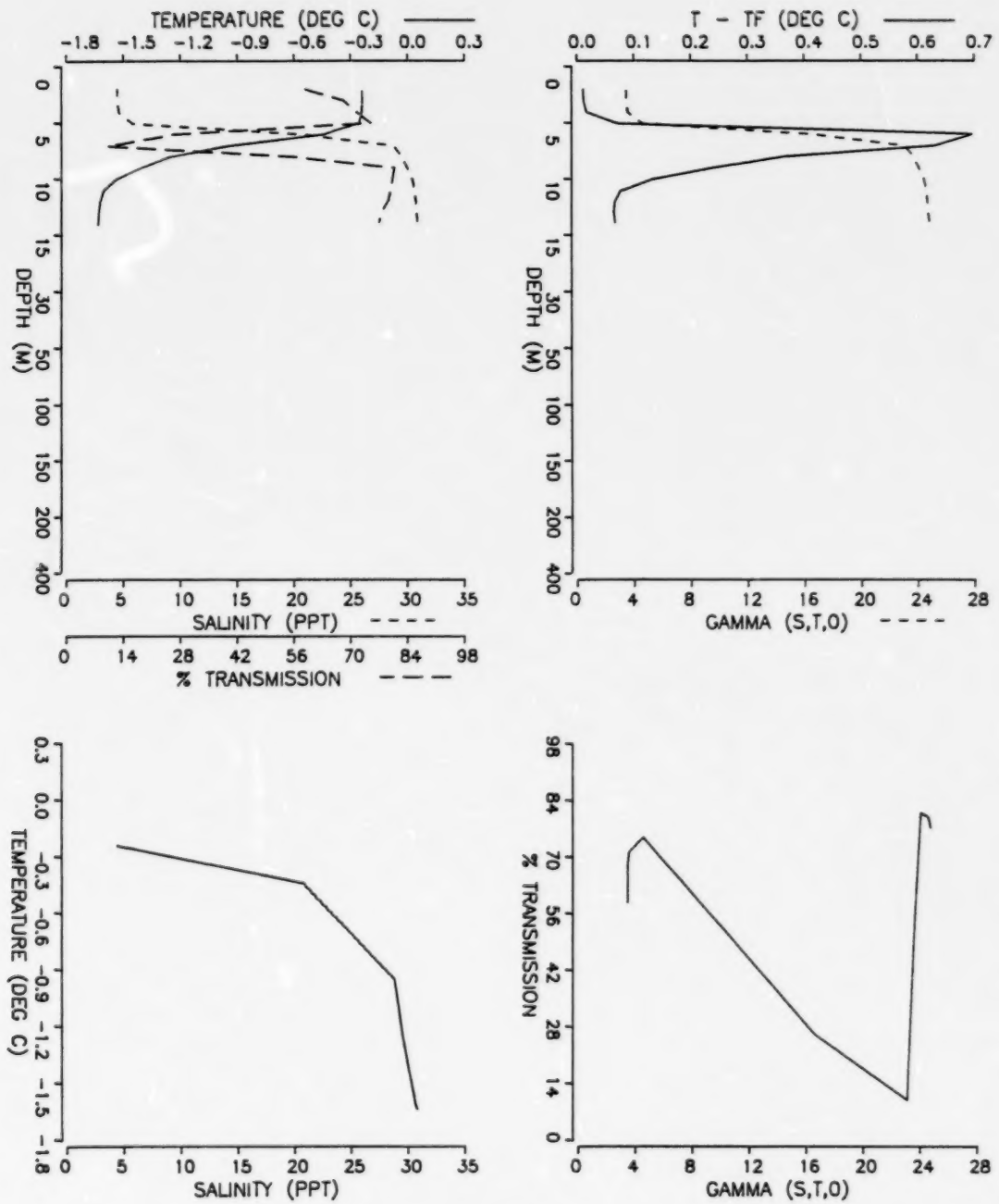
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
2.0	-0.22	4.11	75.9	1.10	3.18	0.01	0.49
3.0	-0.22	4.21	78.0	0.99	3.26	0.02	0.73
4.0	-0.23	4.35	79.4	0.92	3.38	0.02	0.97



STATION Y1-2 CAST # 87031 DATE : 10:27 MDT ON 28/04/ 87
WATER DEPTH 4.2 M ICE THICKNESS 1.5 M INSTRUMENT : APPL MICROSYS CTD
LAT : 69 56.20 N LONG : 131 25.40 W

STATION	LAT	LONG	DATE
Y2-2	70 1.7 N	131 33.2 W	13:20 MDT ON 28/04/ 87

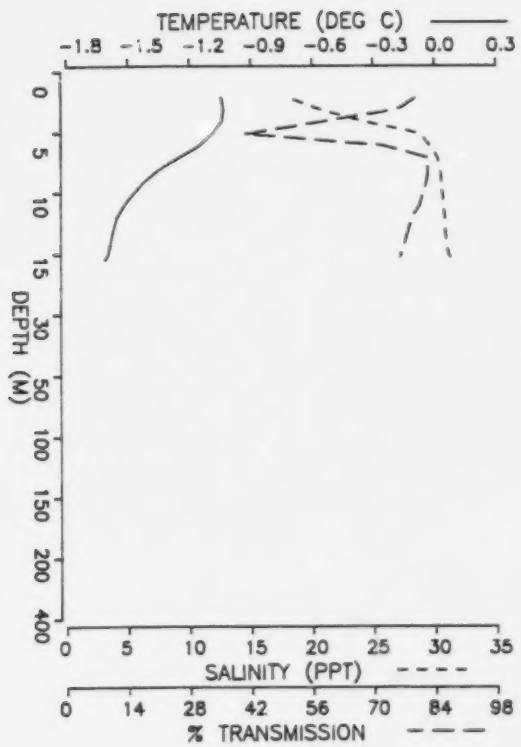
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
2.0	-0.24	4.49	59.0	2.11	3.49	0.01	0.48
3.0	-0.24	4.50	68.2	1.53	3.49	0.01	0.72
4.0	-0.24	4.62	71.4	1.35	3.59	0.02	0.96
5.0	-0.25	5.87	75.0	1.15	4.60	0.07	1.20
6.0	-0.44	20.84	26.2	5.36	16.69	0.70	1.37
7.0	-0.95	28.81	10.2	9.15	23.14	0.63	1.45
8.0	-1.25	29.53	56.4	2.29	23.73	0.36	1.49
9.0	-1.41	30.01	80.9	0.85	24.12	0.24	1.53
10.0	-1.54	30.44	80.4	0.87	24.47	0.13	1.57
12.0	-1.62	30.75	79.3	0.93	24.72	0.07	1.64
14.0	-1.63	30.93	77.1	1.04	24.87	0.07	1.70

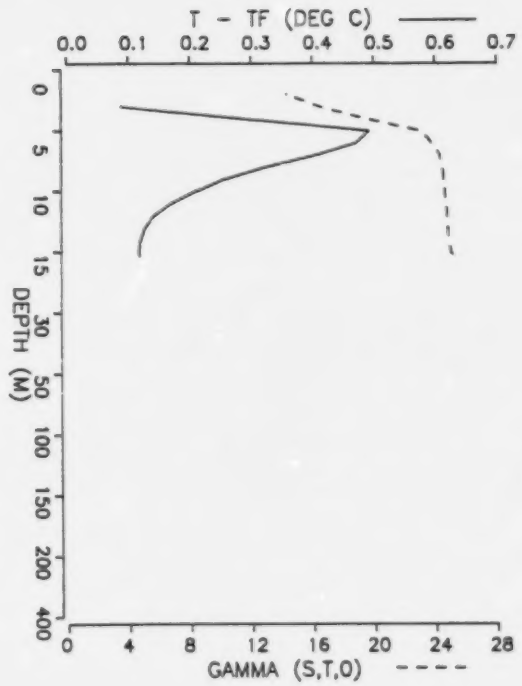


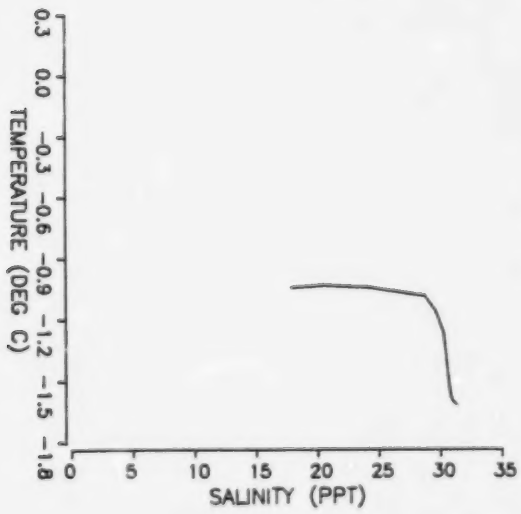
STATION Y2-2 CAST # 87030 DATE : 13:20 MDT ON 28/04/ 87
WATER DEPTH 13.0 M ICE THICKNESS 1.9 M INSTRUMENT : APPL MICROSYS CTD
LAT : 70 1.70 N LONG : 131 33.20 W

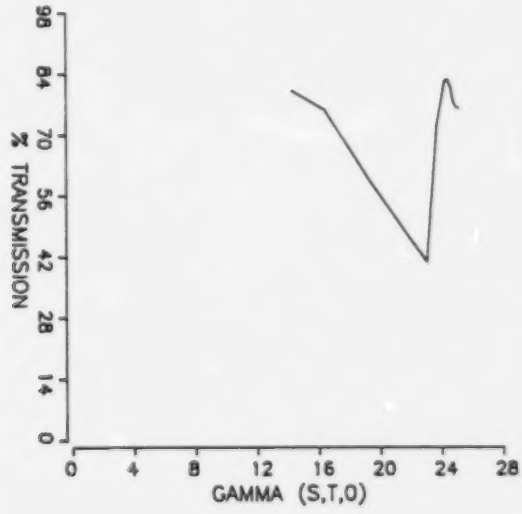
STATION	LAT	LONG	DATE
Y3-2	70 5.1 N	131 39.0 W	12:37 MDT ON 28/04/ 87

DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
2.0	-1.04	17.99	80.2	0.88	14.38	-0.07	0.27
3.0	-1.03	20.60	75.8	1.11	16.50	0.09	0.39
4.0	-1.04	24.35	58.9	2.12	19.53	0.29	0.49
5.0	-1.08	28.78	40.9	3.58	23.11	0.49	0.55
6.0	-1.15	29.64	72.4	1.29	23.81	0.47	0.60
7.0	-1.25	30.27	82.4	0.78	24.32	0.40	0.63
8.0	-1.35	30.48	82.6	0.77	24.50	0.32	0.67
9.0	-1.42	30.59	82.3	0.78	24.59	0.25	0.70
10.0	-1.47	30.67	81.4	0.82	24.65	0.21	0.74
12.0	-1.55	30.85	78.9	0.95	24.80	0.14	0.80
14.0	-1.58	30.99	77.3	1.03	24.92	0.12	0.86
16.0	-1.61	31.43	76.1	1.09	25.27	0.12	0.92





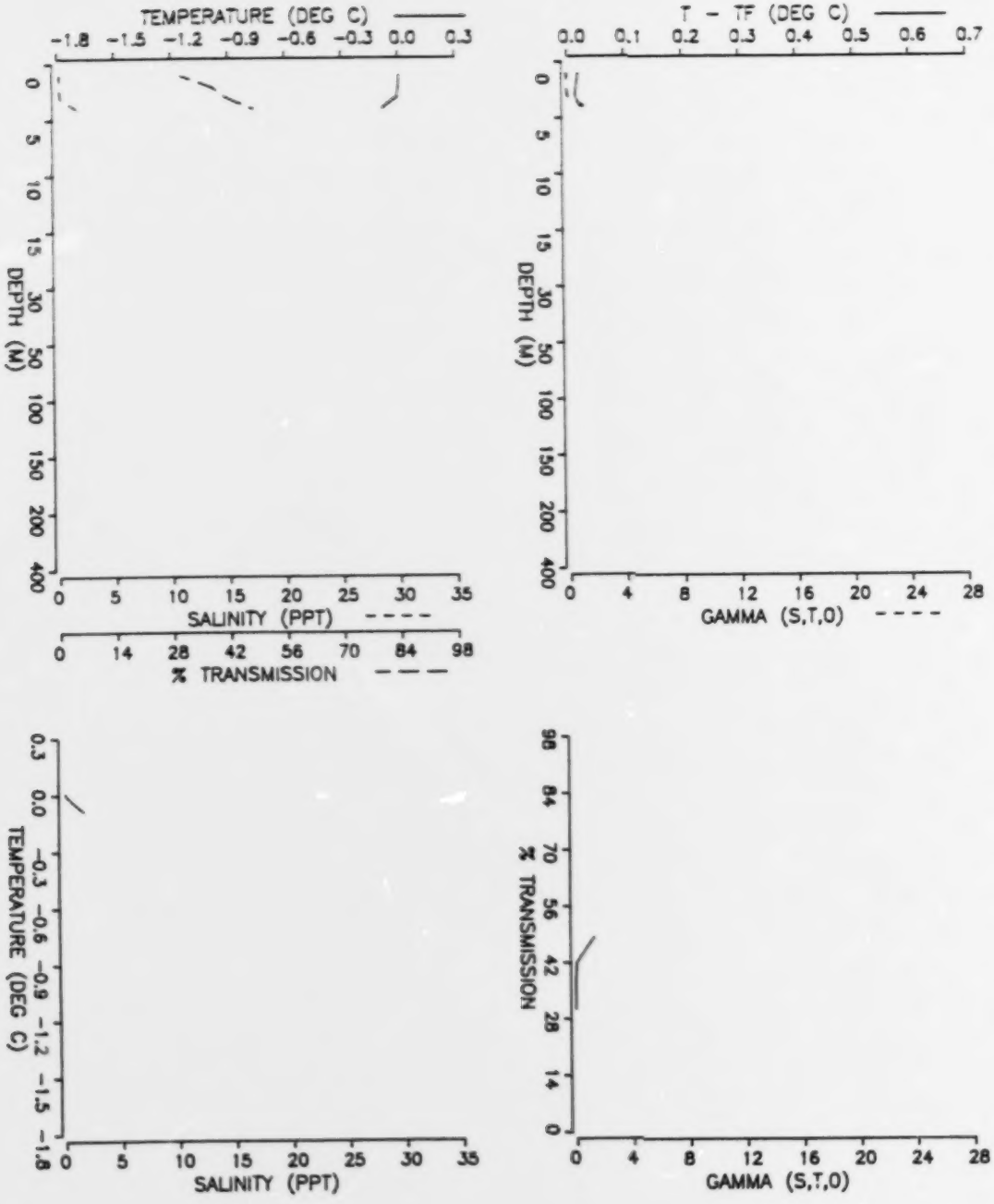




STATION Y3-2 CAST # 87032 DATE : 12:37 MDT ON 28/04/ 87
WATER DEPTH 15.7 M ICE THICKNESS 1.3 M INSTRUMENT : APPL MICROSYS CTD
LAT : 70 5.10 N LONG : 131 39.00 W

STATION	LAT	LONG	DATE
2-3	69 32.5 N	133 19.5 W	14:09 MDT ON 23/05/ 87

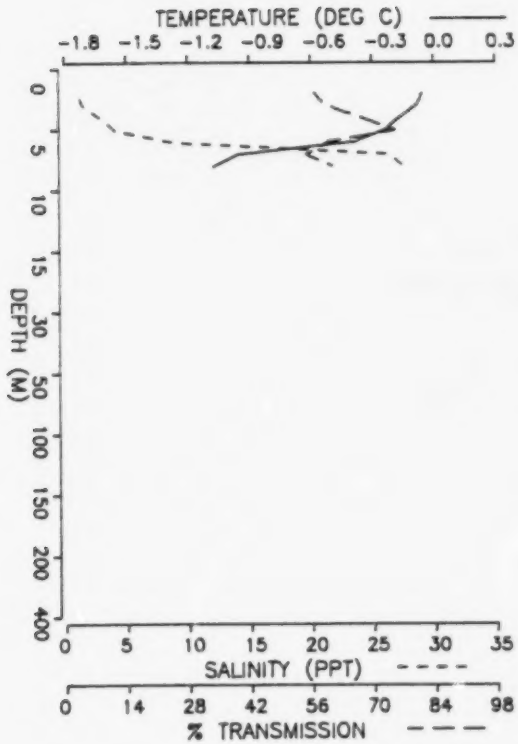
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	0.01	0.18	30.7	4.72	-0.01	0.02	0.28
2.0	0.00	0.19	38.3	3.84	0.00	0.02	0.55
3.0	0.00	0.26	42.1	3.46	0.05	0.01	0.83
4.0	-0.08	1.83	48.7	2.88	1.33	0.02	1.10

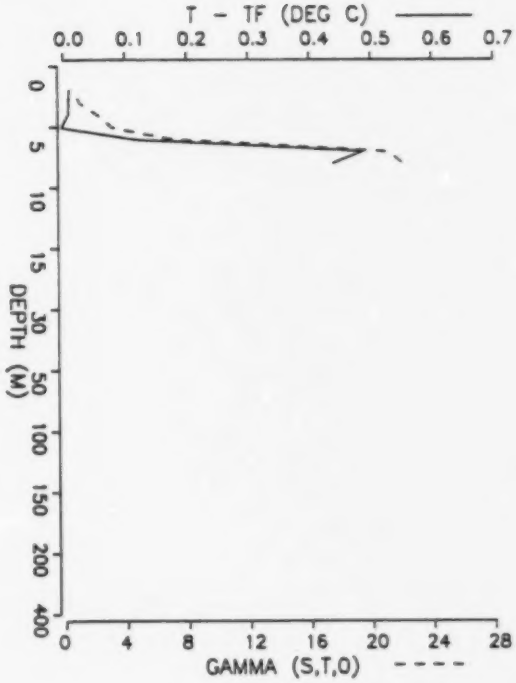


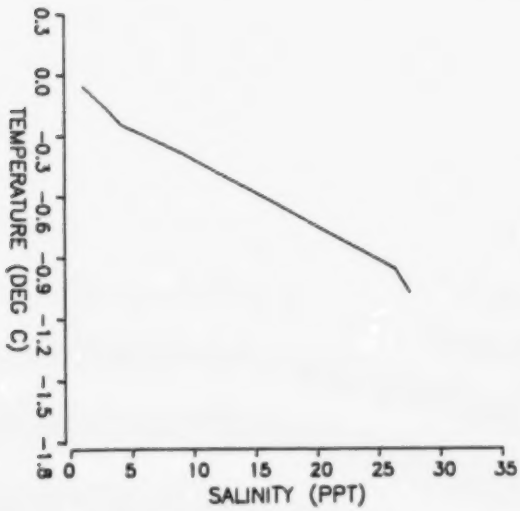
STATION 2-3 CAST # 87033 DATE : 14:09 MDT ON 23/05/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 32.50 N LONG : 133 19.50 W

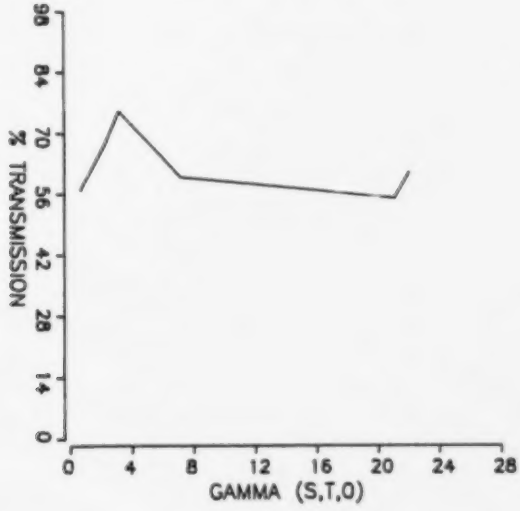
STATION	LAT	LONG		DATE
3-3	69 47.0 N	133 21.0 W	15:06 MDT ON	23/05/ 87

DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
2.0	-0.05	1.07	57.1	2.24	0.72	0.01	0.54
3.0	-0.08	1.50	59.6	2.07	1.06	0.01	0.81
4.0	-0.16	2.99	67.6	1.57	2.27	0.01	1.06
5.0	-0.24	4.15	75.3	1.14	3.21	0.00	1.31
6.0	-0.38	9.10	60.1	2.04	7.22	0.12	1.54
7.0	-0.95	26.36	55.0	2.39	21.16	0.49	1.67
8.0	-1.07	27.62	61.3	1.96	22.17	0.44	1.73





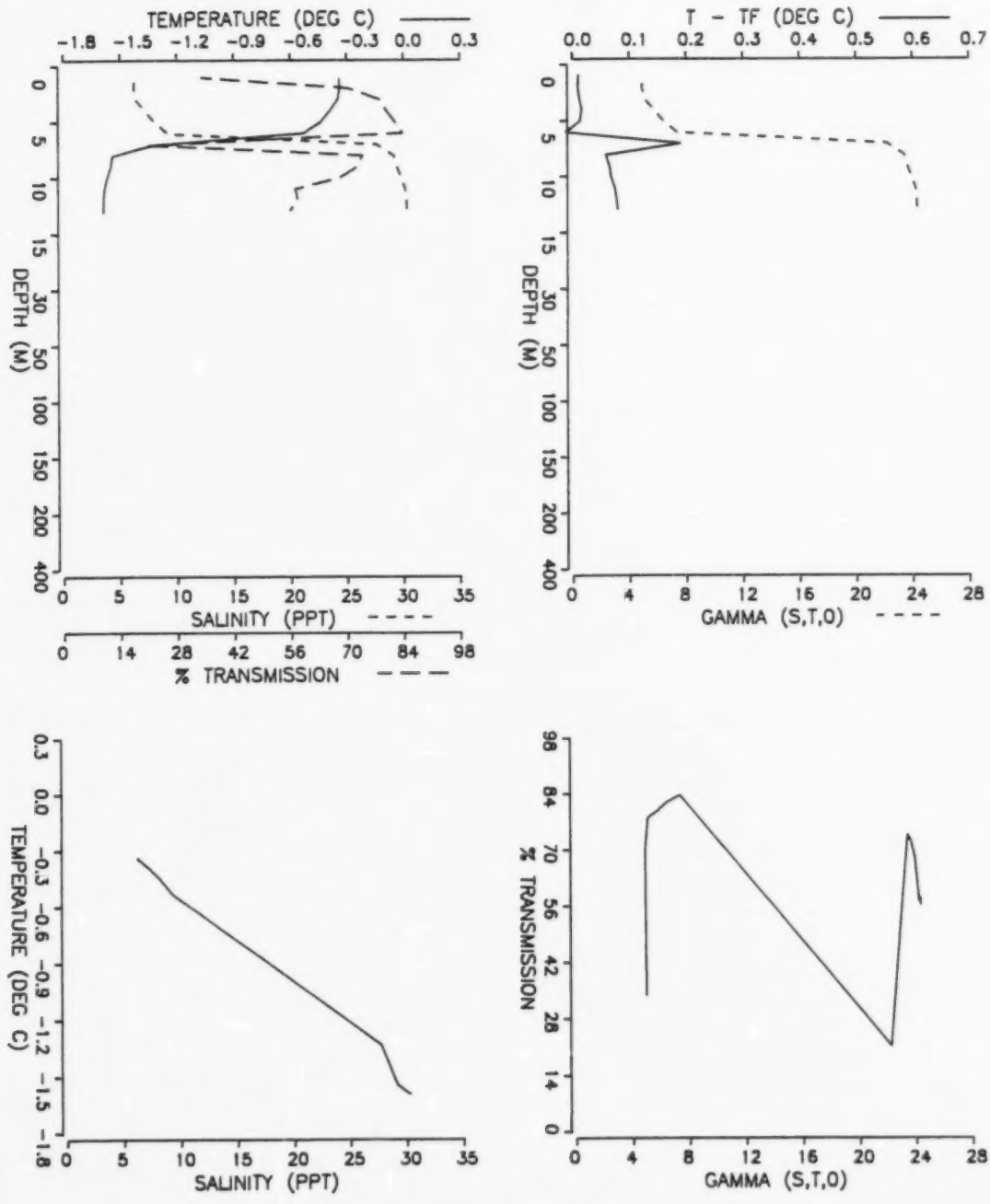




STATION 3-3 CAST # 87034 DATE : 15:06 MDT ON 23/05/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 47.00 N LONG : 133 21.00 W

STATION	LAT	LONG	DATE
4-3	69 53.5 N	133 24.0 W	16:00 MDT ON 23/05/ 87

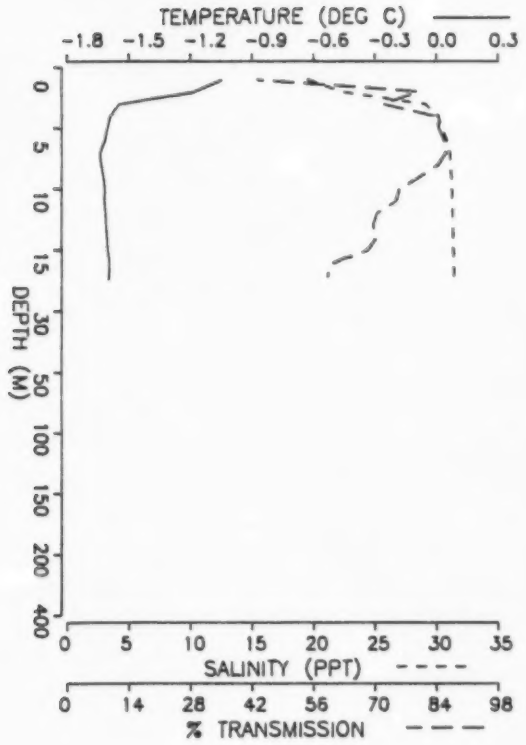
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.34	6.33	34.3	4.28	4.98	0.01	0.23
2.0	-0.33	6.26	70.6	1.39	4.91	0.01	0.45
3.0	-0.34	6.47	78.2	0.98	5.08	0.01	0.68
4.0	-0.39	7.33	79.8	0.90	5.78	0.02	0.90
5.0	-0.44	8.17	82.0	0.79	6.46	0.01	1.11
6.0	-0.52	9.36	83.8	0.71	7.42	-0.01	1.32
7.0	-1.32	27.71	21.5	6.16	22.25	0.19	1.45
8.0	-1.54	29.18	73.9	1.21	23.45	0.06	1.50
9.0	-1.55	29.47	72.5	1.28	23.68	0.07	1.54
10.0	-1.57	29.83	68.1	1.54	23.98	0.07	1.59
12.0	-1.59	30.29	58.0	2.18	24.35	0.08	1.66
13.0	-1.59	30.32	56.0	2.32	24.38	0.08	1.70

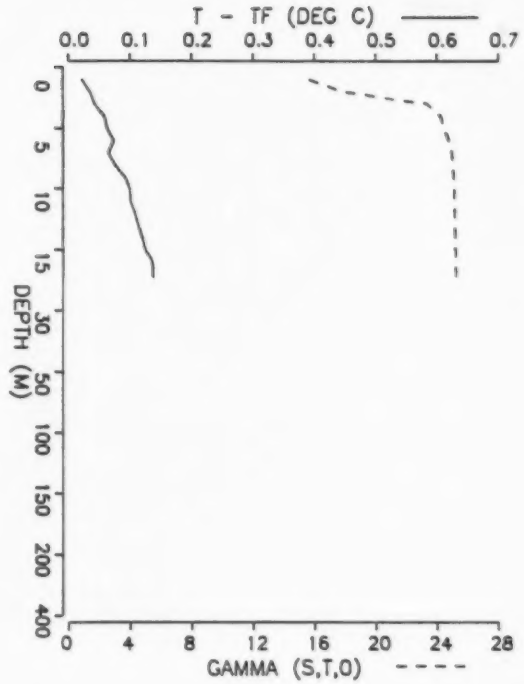


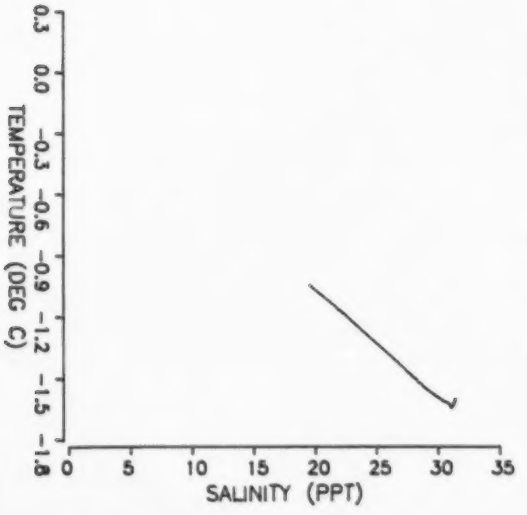
STATION 4-3 CAST # 87035 DATE : 16:00 MDT ON 23/05/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 53.50 N LONG : 133 24.00 W

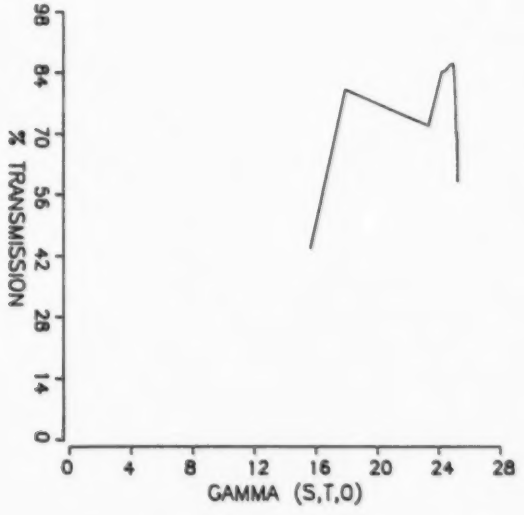
STATION	LAT	LONG	DATE
4A-3	69 58.5 N	133 25.0 W	16:47 MDT ON 23/05/ 87

DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-1.04	19.61	43.4	3.34	15.70	0.02	0.12
2.0	-1.18	22.42	80.1	0.89	17.96	0.04	0.23
3.0	-1.55	29.11	71.8	1.32	23.39	0.04	0.30
4.0	-1.59	30.17	84.1	0.69	24.25	0.06	0.34
5.0	-1.61	30.48	84.6	0.67	24.50	0.06	0.38
6.0	-1.62	30.86	85.8	0.61	24.81	0.07	0.41
7.0	-1.64	31.09	86.2	0.59	25.00	0.06	0.44
8.0	-1.63	31.17	84.4	0.68	25.07	0.08	0.47
9.0	-1.62	31.24	80.1	0.89	25.12	0.09	0.50
10.0	-1.62	31.28	75.7	1.11	25.15	0.10	0.53
12.0	-1.61	31.32	70.6	1.40	25.18	0.11	0.58
14.0	-1.61	31.37	70.4	1.40	25.23	0.12	0.64
16.0	-1.60	31.40	66.4	1.64	25.25	0.13	0.69
18.0	-1.60	31.43	60.7	1.99	25.27	0.14	0.75
20.0	-1.60	31.43	59.7	2.06	25.28	0.14	0.80
22.0	-1.60	31.43	59.3	2.09	25.28	0.14	0.86





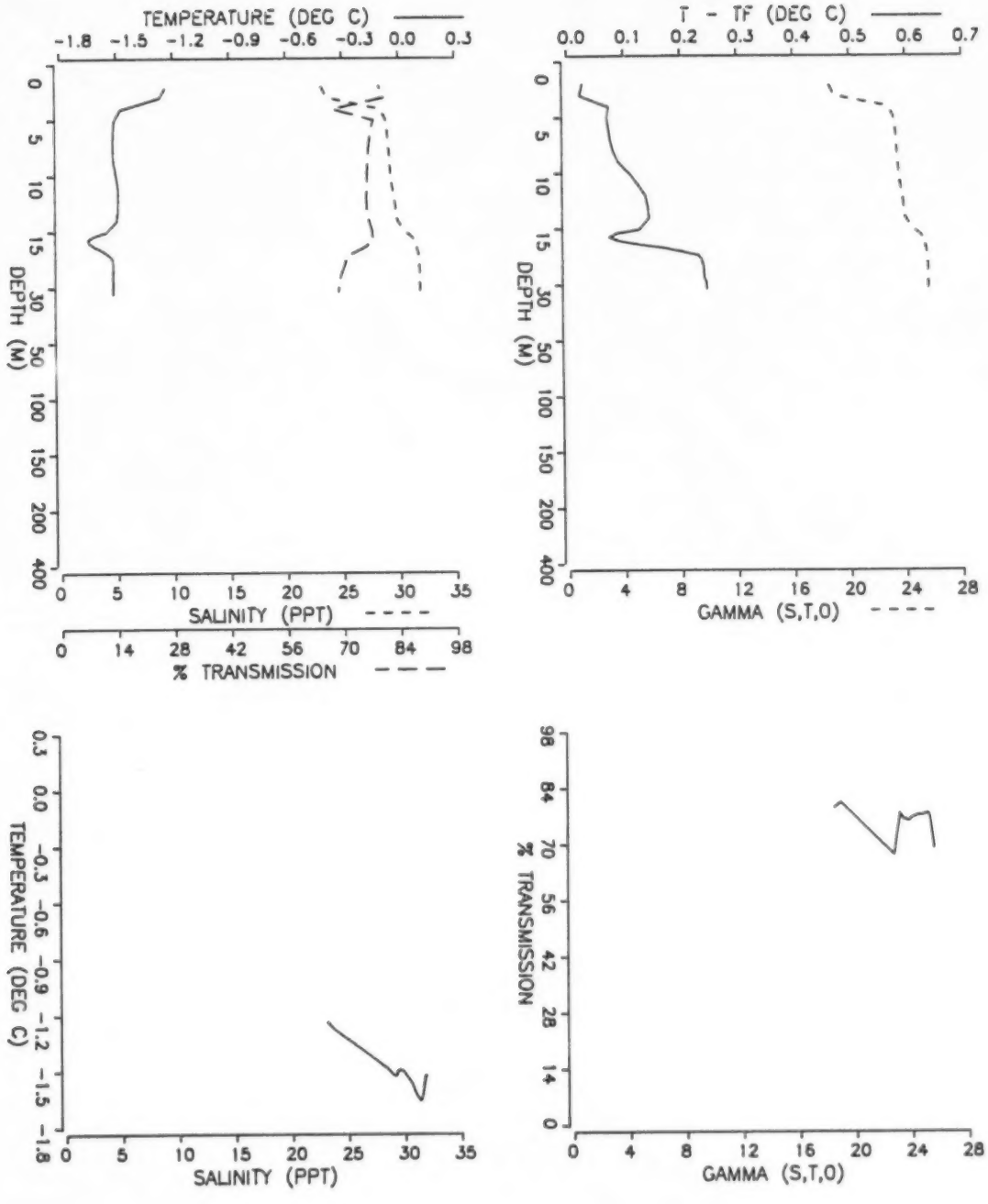




STATION 4A-3 CAST # 87036 DATE : 16:47 MDT ON 23/05/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 58.50 N LONG : 133 25.00 W

STATION	LAT	LONG	DATE
5-3	70 13.2 N	134 57.6 W	15:55 MDT ON 26 05 87

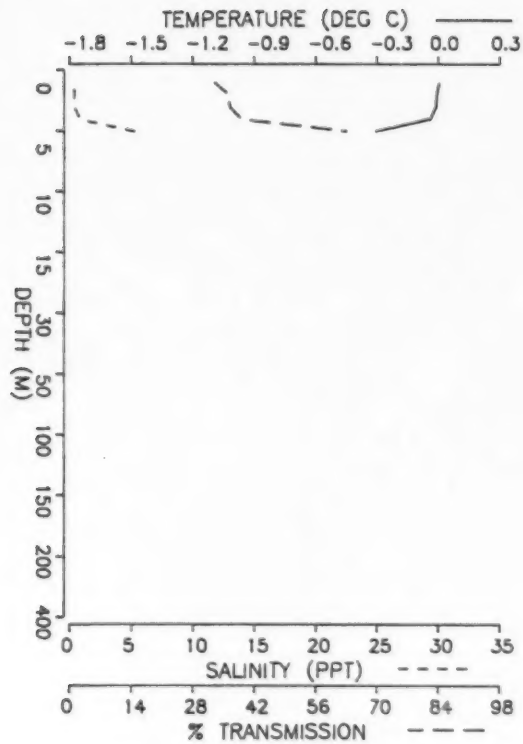
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
2.0	-1.23	23.20	79.3	0.93	18.60	0.03	0.18
3.0	-1.27	23.73	80.6	0.86	19.03	0.02	0.27
4.0	-1.48	28.39	67.6	1.57	22.80	0.07	0.34
5.0	-1.51	28.92	77.8	1.00	23.23	0.07	0.39
6.0	-1.51	29.04	77.2	1.04	23.33	0.07	0.44
7.0	-1.52	29.12	76.8	1.06	23.40	0.08	0.48
8.0	-1.52	29.20	76.5	1.07	23.46	0.08	0.53
9.0	-1.51	29.25	76.3	1.08	23.51	0.09	0.57
10.0	-1.50	29.35	76.3	1.08	23.58	0.11	0.62
12.0	-1.49	29.66	76.0	1.10	23.84	0.14	0.70
14.0	-1.50	29.90	76.6	1.06	24.03	0.14	0.78
16.0	-1.62	31.00	77.5	1.02	24.92	0.09	0.85
18.0	-1.64	31.47	77.4	1.02	25.31	0.09	0.91
20.0	-1.58	31.66	74.4	1.18	25.46	0.17	0.96
22.0	-1.52	31.80	71.4	1.35	25.58	0.23	1.01
24.0	-1.52	31.83	70.7	1.39	25.60	0.24	1.06
26.0	-1.52	31.84	70.0	1.43	25.61	0.24	1.10
28.0	-1.52	31.85	69.6	1.45	25.62	0.24	1.15
30.0	-1.52	31.88	69.3	1.47	25.64	0.25	1.20
32.0	-1.52	31.88	69.1	1.48	25.64	0.25	1.25

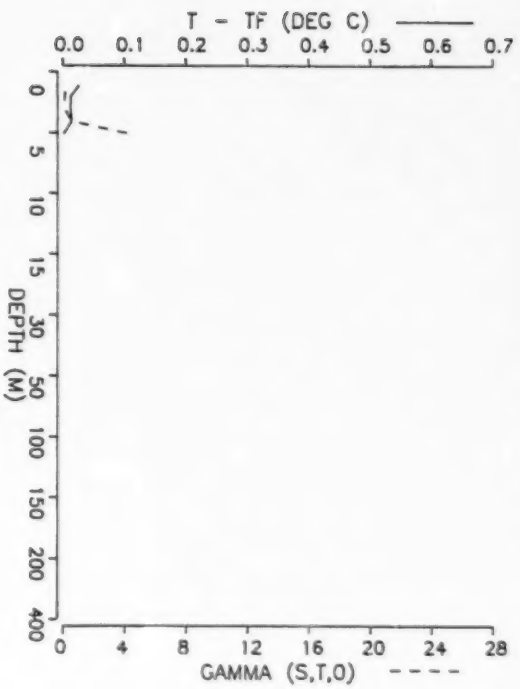


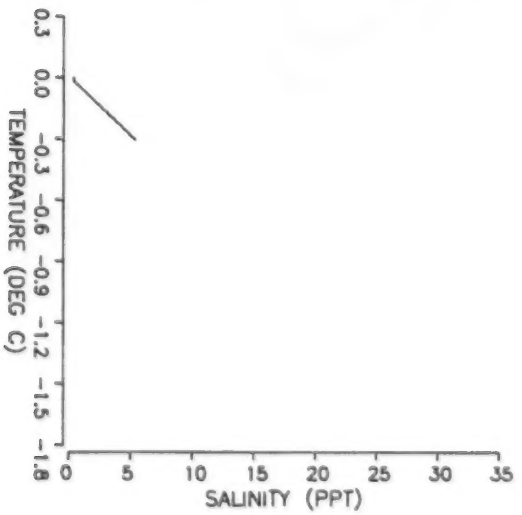
STATION 5-3 CAST # 87047 DATE : 15:55 MDT ON 26/05/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 70 13.20 N LONG : 134 57.60 W

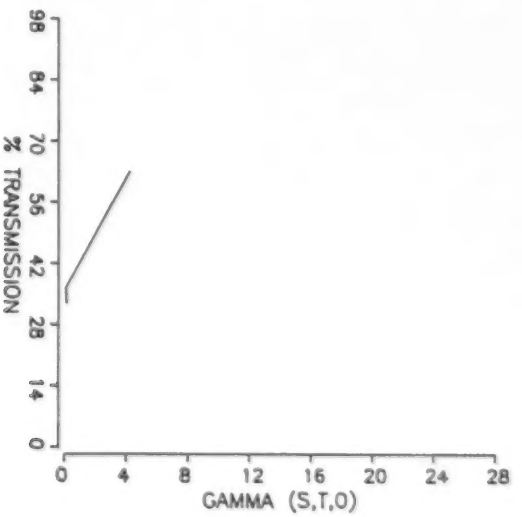
STATION	LAT	LONG	DATE
X1-3	69 44.8 N	132 29.0 W	10:25 MDT ON 24/05/ 87

DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	0.00	0.40	33.1	4.42	0.17	0.03	0.27
2.0	-0.01	0.34	36.4	4.04	0.12	0.01	0.55
3.0	-0.01	0.35	36.5	4.03	0.13	0.01	0.82
4.0	-0.04	0.89	39.4	3.73	0.57	0.01	1.10
5.0	-0.30	5.50	63.5	1.82	4.30	0.00	1.35





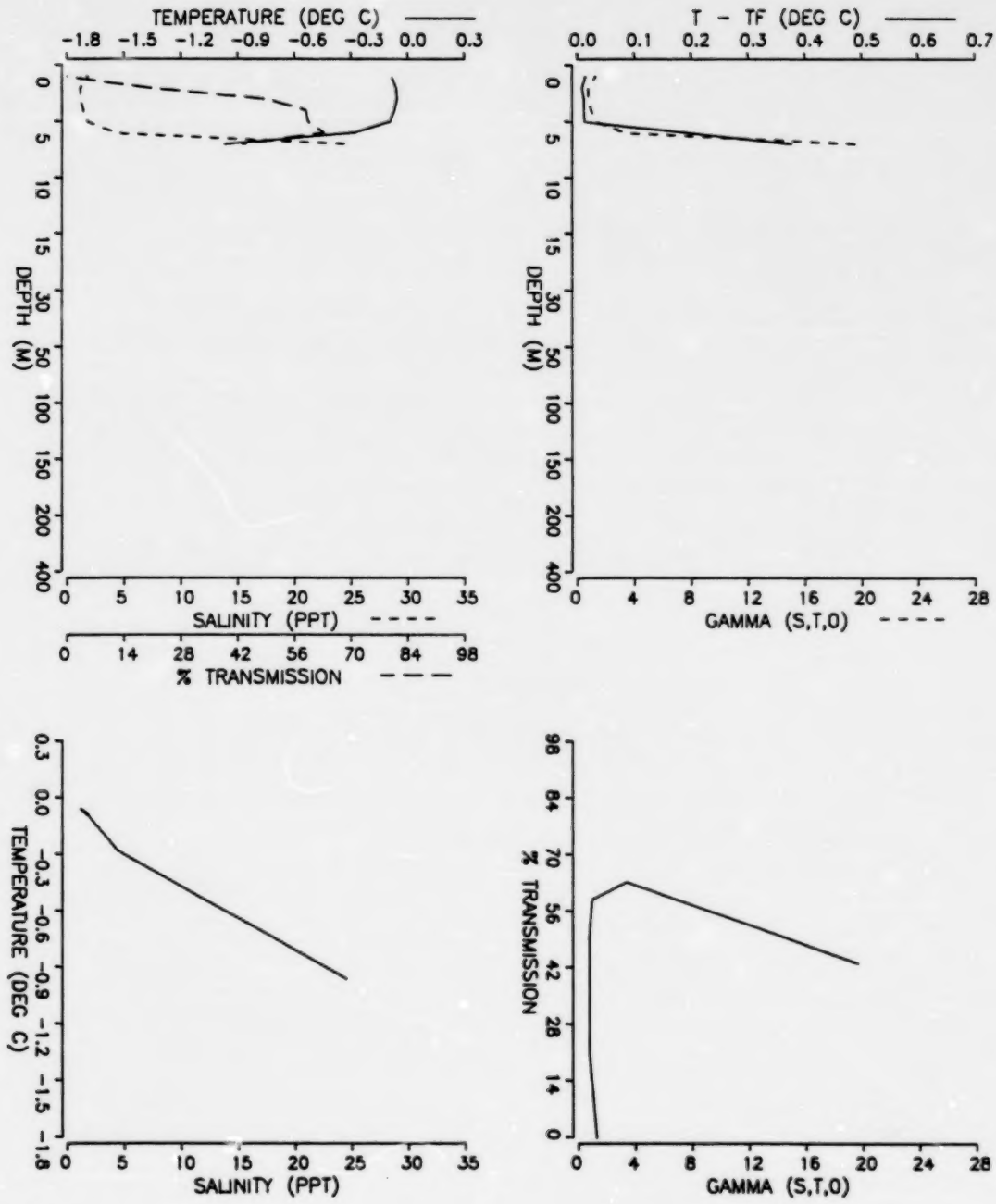




STATION X1-3 CAST # 87041 DATE : 10:25 MDT ON 24/05/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 44.80 N LONG : 132 29.00 W

STATION	LAT	LONG	DATE
X2-3	69 48.4 N	132 30.0 W	11:55 MDT ON 24/05/ 87

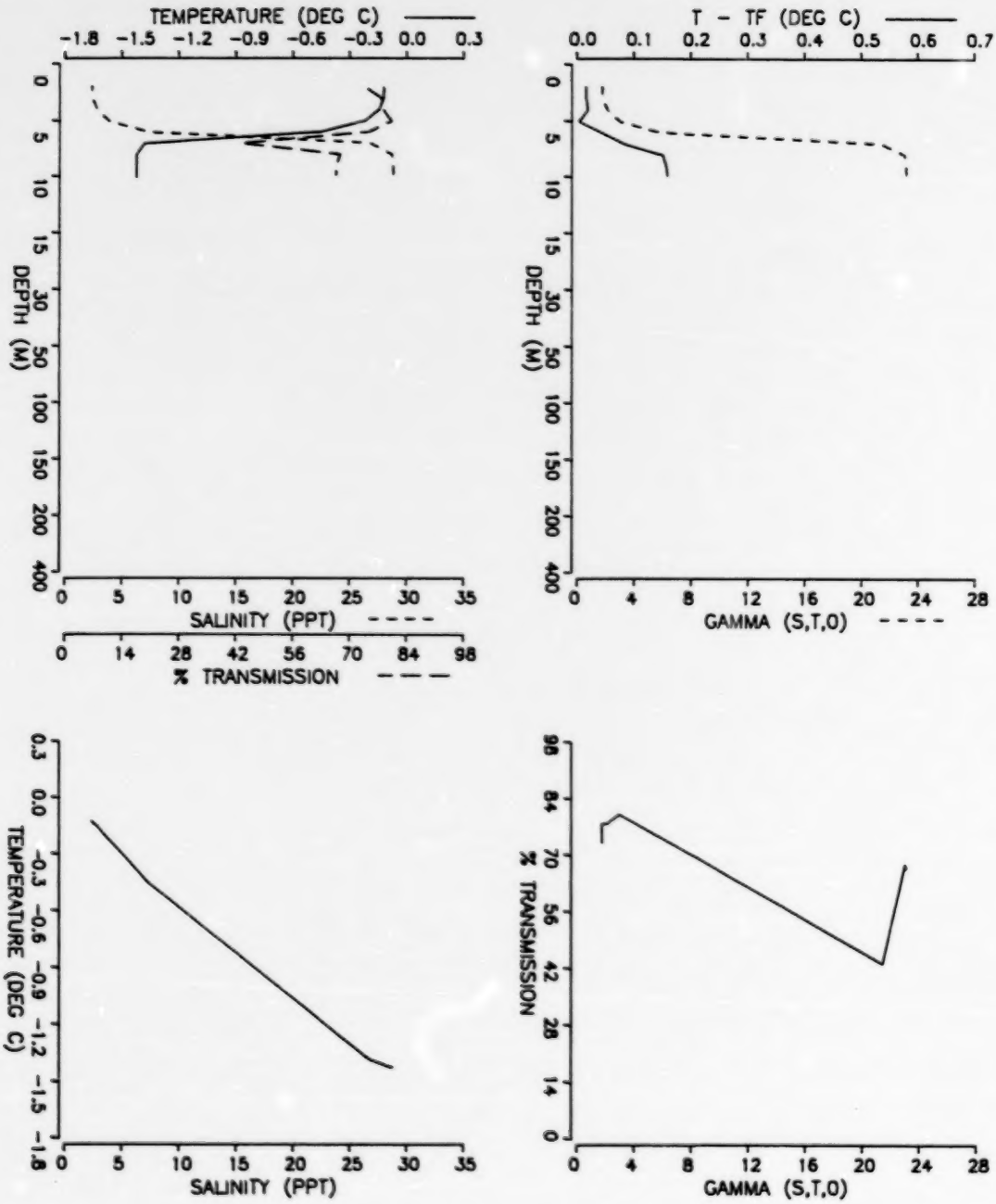
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.08	1.78	0.0	33.66	1.29	0.01	0.26
2.0	-0.06	1.17	21.6	6.13	0.80	0.01	0.53
3.0	-0.06	1.17	49.7	2.80	0.80	0.01	0.80
4.0	-0.07	1.41	59.0	2.11	0.99	0.01	1.06
5.0	-0.09	1.84	59.5	2.07	1.34	0.01	1.33
6.0	-0.28	4.44	63.3	1.83	3.44	-0.03	1.58
7.0	-0.96	24.67	43.0	3.38	19.79	0.38	1.74



STATION X2-3 CAST # 87042 DATE : 11:55 MDT ON 24/05/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 48.40 N LONG : 132 30.00 W

STATION	LAT	LONG	DATE
X3-3	69 51.8 N	132 31.0 W	13:10 MDT ON 24/05/ 87

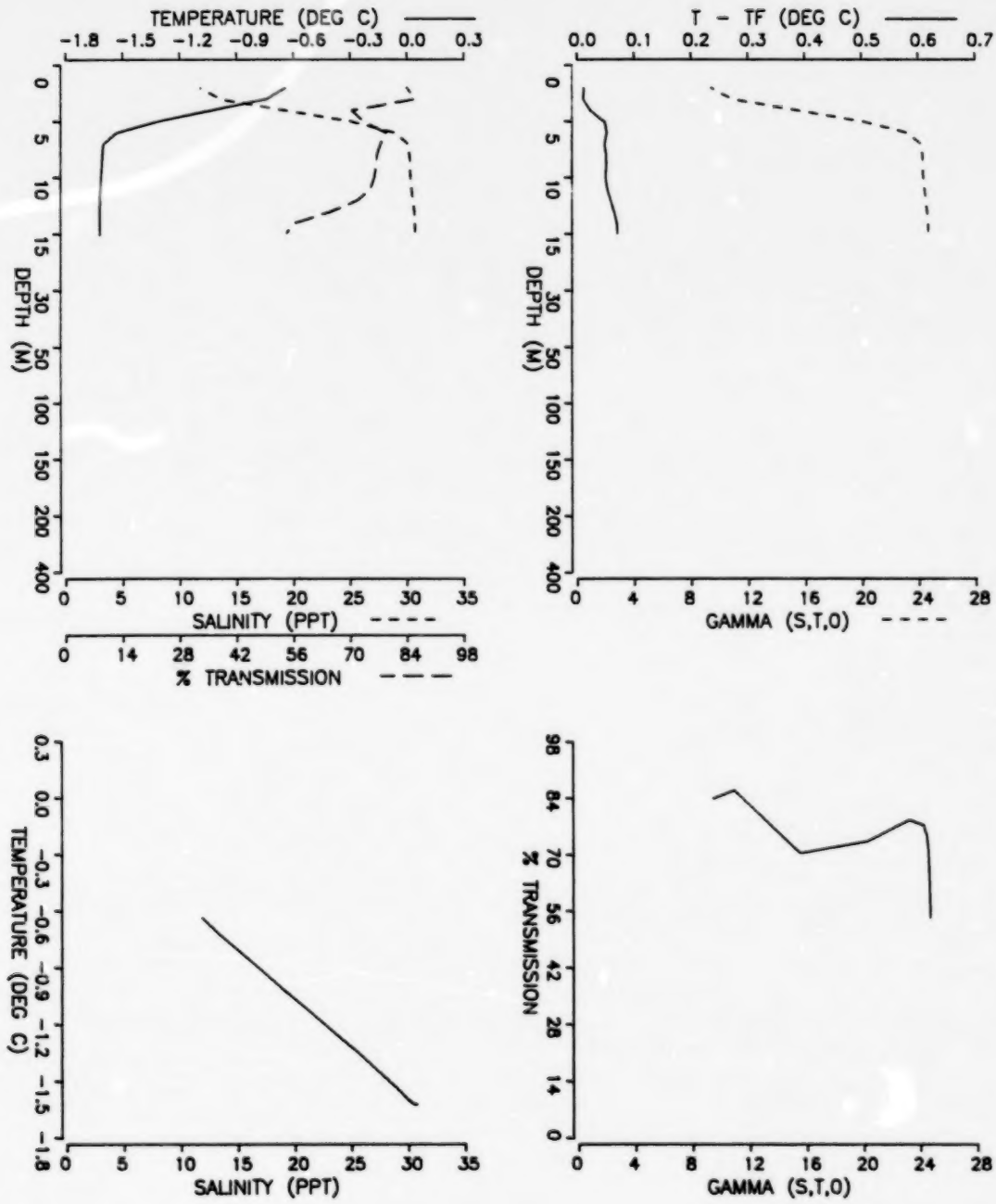
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
2.0	-0.12	2.41	73.5	1.23	1.80	0.02	0.52
3.0	-0.12	2.40	77.8	1.01	1.80	0.02	0.77
4.0	-0.14	2.90	78.1	0.99	2.20	0.02	1.03
5.0	-0.22	3.94	80.3	0.88	3.04	0.00	1.28
6.0	-0.45	7.47	74.7	1.17	5.89	-0.04	1.51
7.0	-1.38	26.77	43.3	3.35	21.49	0.08	1.65
8.0	-1.42	28.71	67.8	1.56	23.06	0.15	1.71
9.0	-1.42	28.81	66.9	1.61	23.15	0.16	1.76
10.0	-1.42	28.85	66.8	1.62	23.18	0.16	1.80



STATION X3-3 CAST # 87037 DATE : 13:10 MDT ON 24/05/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 51.80 N LONG : 132 31.00 W

STATION	LAT	LONG	DATE
X4-3	69 58.6 N	132 33.4 W	14:32 MDT ON 24/05/ 87

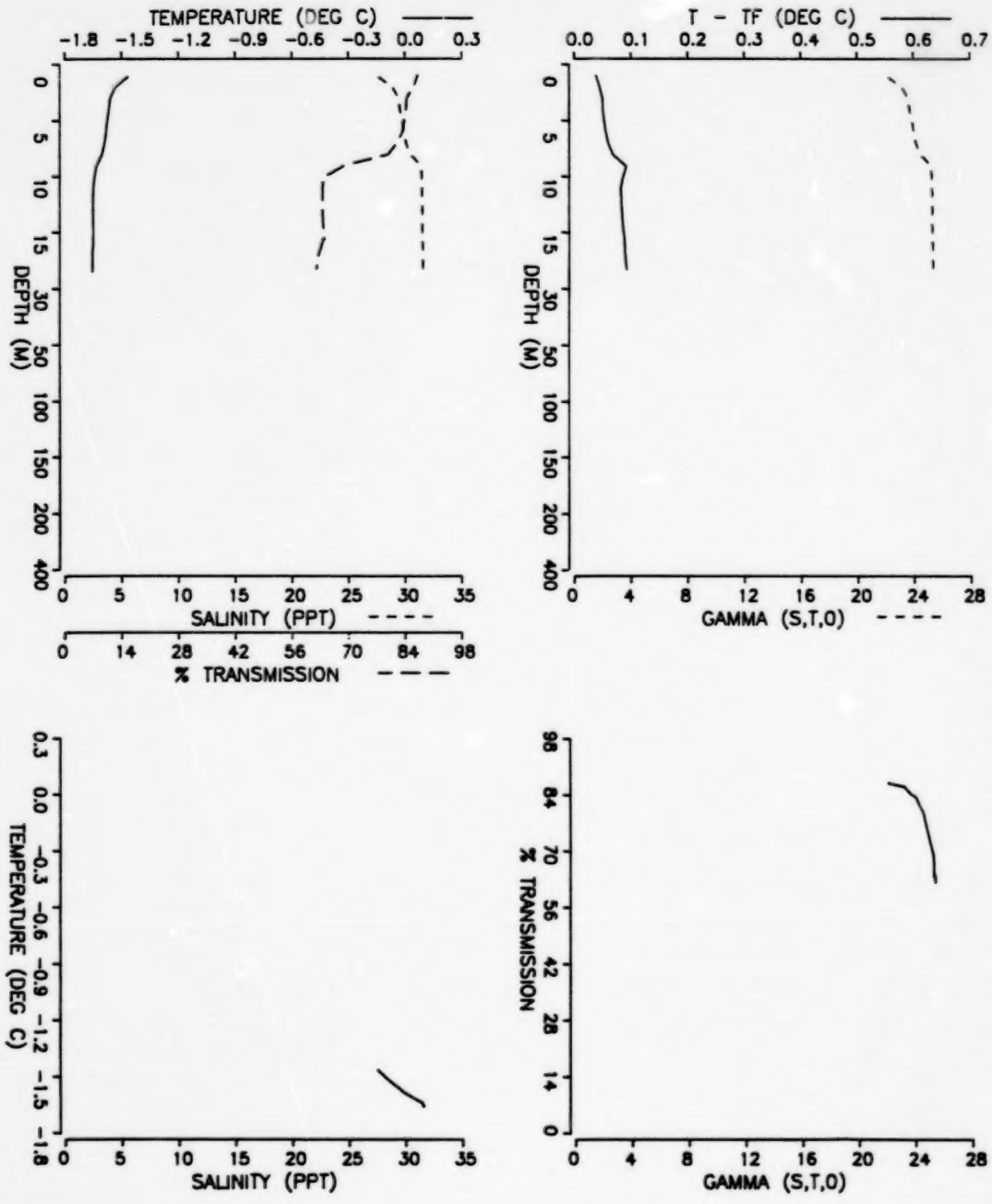
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
2.0	-0.63	11.92	84.0	0.70	9.48	0.01	0.36
3.0	-0.74	13.75	86.0	0.60	10.96	0.01	0.54
4.0	-1.03	19.45	70.5	1.40	15.57	0.02	0.68
5.0	-1.33	25.28	73.5	1.23	20.28	0.05	0.78
6.0	-1.53	28.98	78.8	0.95	23.28	0.05	0.84
7.0	-1.60	30.14	77.6	1.02	24.23	0.05	0.88
8.0	-1.61	30.26	76.6	1.07	24.32	0.05	0.92
9.0	-1.61	30.28	76.3	1.08	24.34	0.05	0.95
10.0	-1.61	30.33	75.9	1.10	24.38	0.05	0.99
12.0	-1.62	30.54	71.8	1.32	24.55	0.06	1.06
14.0	-1.62	30.72	56.3	2.30	24.70	0.07	1.13
15.0	-1.62	30.73	54.3	2.44	24.71	0.07	1.16



STATION X4-3 CAST # 87038 DATE : 14:32 MDT ON 24/05/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 58.60 N LONG : 132 33.40 W

STATION	LAT	LONG	DATE
X5-3	70 7.2 N	132 36.8 W	15:24 MDT ON 24/05/ 87

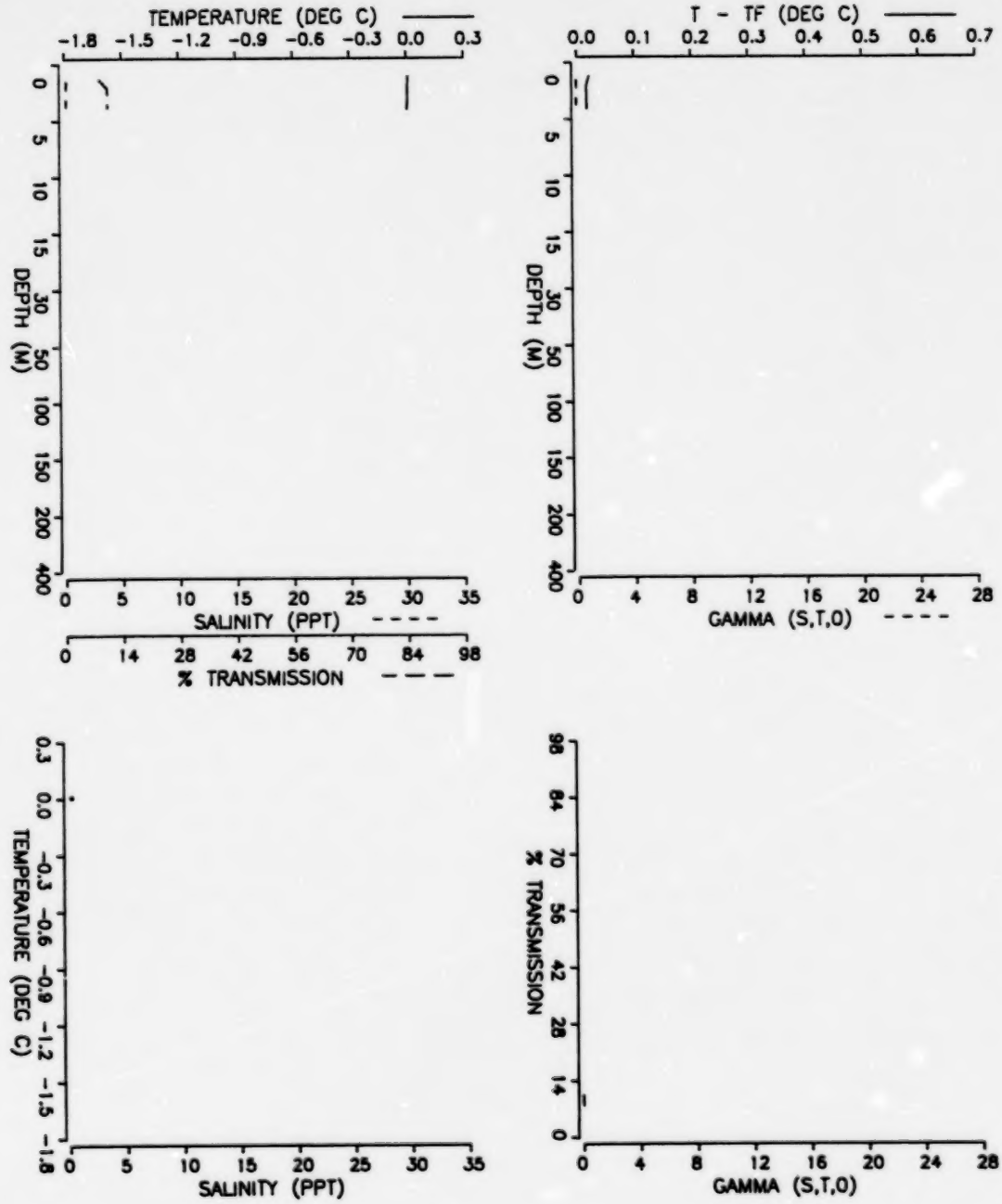
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-1.46	27.54	87.1	0.55	22.11	0.04	0.06
2.0	-1.53	28.91	86.2	0.59	23.23	0.05	0.11
3.0	-1.56	29.46	84.4	0.68	23.67	0.05	0.15
4.0	-1.57	29.58	84.3	0.68	23.78	0.05	0.20
5.0	-1.58	29.80	83.8	0.70	23.95	0.05	0.24
6.0	-1.58	29.92	83.4	0.73	24.05	0.06	0.28
7.0	-1.59	30.12	82.2	0.79	24.21	0.06	0.31
8.0	-1.60	30.51	79.9	0.90	24.53	0.07	0.35
9.0	-1.63	31.42	69.0	1.49	25.27	0.09	0.38
10.0	-1.64	31.49	64.1	1.78	25.33	0.09	0.41
12.0	-1.65	31.53	63.8	1.80	25.35	0.08	0.46
14.0	-1.65	31.54	63.8	1.80	25.37	0.09	0.51
16.0	-1.65	31.56	64.3	1.76	25.39	0.09	0.57
18.0	-1.65	31.58	63.5	1.82	25.39	0.09	0.62
20.0	-1.65	31.59	63.0	1.85	25.40	0.09	0.67
22.0	-1.65	31.59	62.7	1.87	25.41	0.09	0.72
24.0	-1.65	31.59	62.4	1.89	25.41	0.09	0.77
25.0	-1.65	31.59	62.1	1.91	25.41	0.09	0.80


TEMPERATURE (DEG C)
-1.8 -1.5 -1.2 -0.9 -0.6 -0.3 0.0 0.3
DEPTH (M)
0 5 10 15 30 50 100 150 200 400
0 5 10 15 20 25 30 35
SALINITY (PPT)
0 14 28 42 56 70 84 98
% TRANSMISSION
T - TF (DEG C)
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7
0 4 8 12 16 20 24 28
GAMMA (S,T,0)
TEMPERATURE (DEG C)
SALINITY (PPT)
% TRANSMISSION
GAMMA (S,T,0)

STATION X5-3 CAST # 87039 DATE : 15:24 MDT ON 24/05/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 70 7.20 N LONG : 132 36.80 W

STATION	LAT	LONG	DATE
RB1-3	69 34.4 N	133 5.2 W	18:31 MDT ON 24/05/ 87

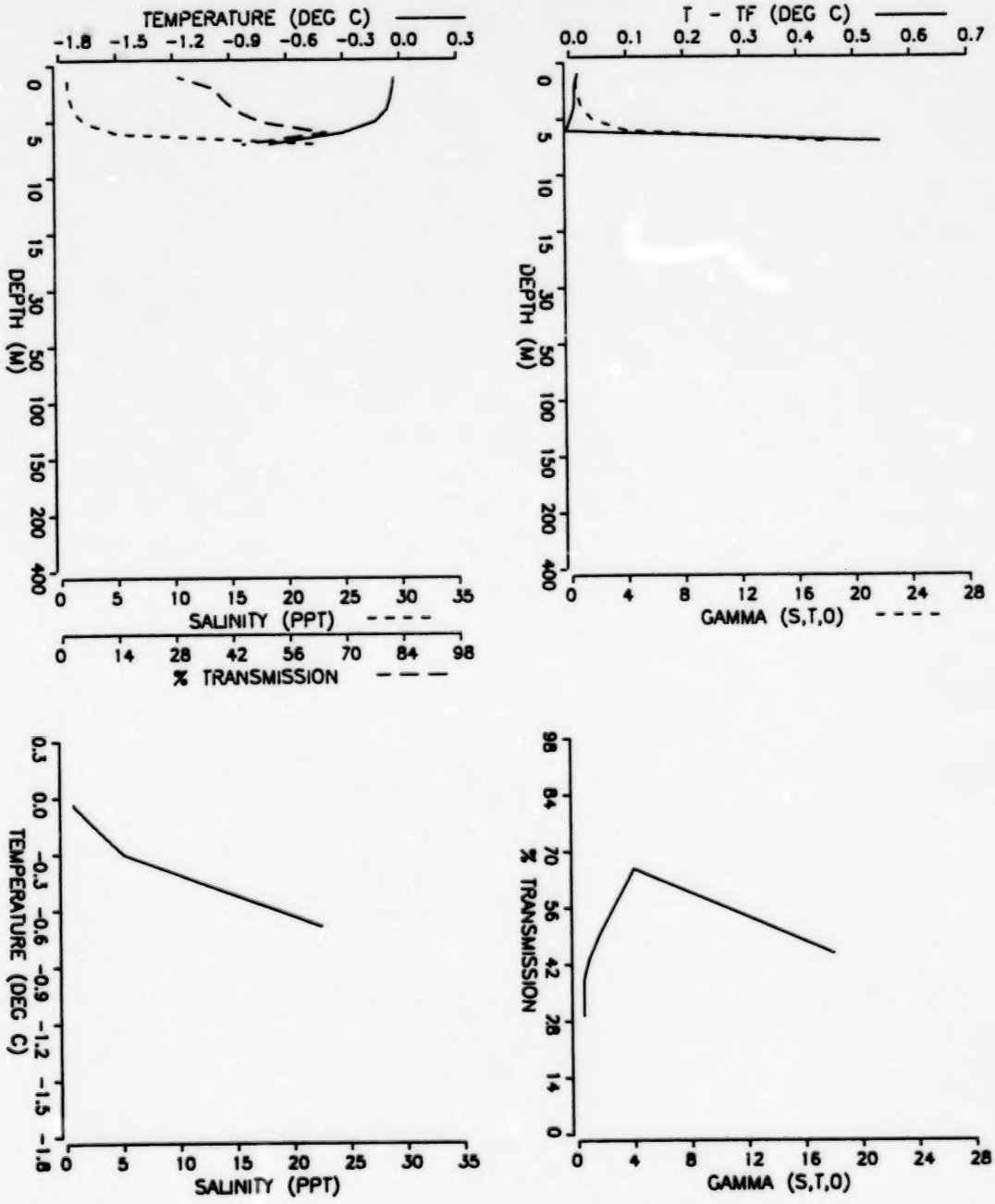
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	0.01	0.21	7.8	10.20	0.01	0.02	0.28
2.0	0.01	0.16	10.6	9.00	-0.02	0.02	0.55
3.0	0.01	0.17	10.7	8.93	-0.02	0.02	0.83
4.0	0.01	0.16	10.7	8.95	-0.02	0.02	1.10



STATION RB1-3 CAST # 87040 DATE : 18:31 MDT ON 24/05/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 34.40 N LONG : 133 5.20 W

STATION	LAT	LONG	DATE
RB3-3	69 44.5 N	133 18.0 W	19:33 MDT ON 25/05/ 87

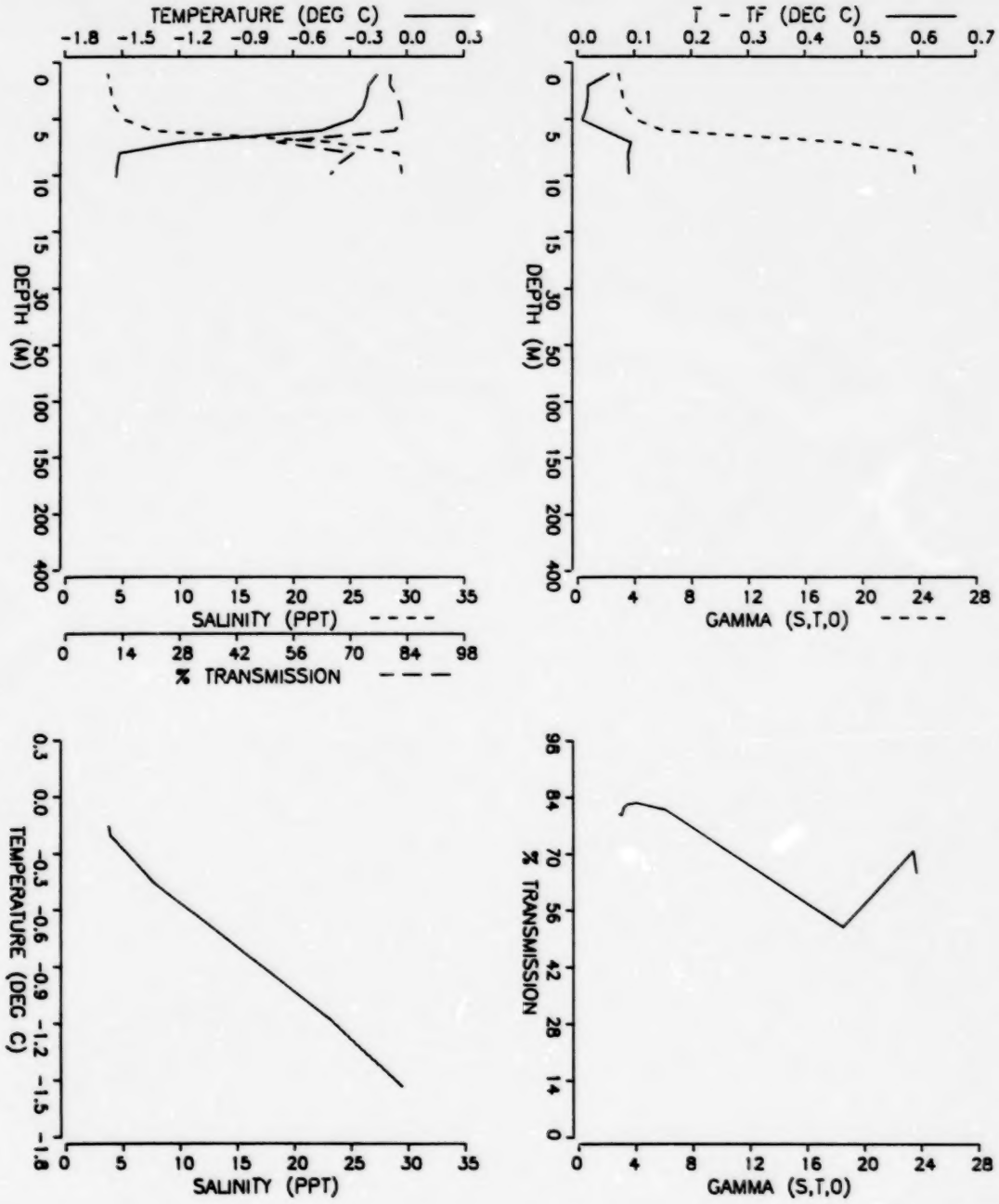
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.03	0.77	29.7	4.86	0.47	0.01	0.27
2.0	-0.04	0.78	38.4	3.83	0.48	0.01	0.54
3.0	-0.05	0.97	40.7	3.59	0.64	0.01	0.81
4.0	-0.07	1.30	43.9	3.29	0.90	0.01	1.08
5.0	-0.13	2.26	50.0	2.77	1.68	0.00	1.34
6.0	-0.29	5.19	65.9	1.67	4.05	-0.01	1.59
7.0	-0.68	22.70	44.7	3.22	18.19	0.55	1.76



STATION RB3-3 CAST # 87046 DATE : 19:33 MDT ON 25/05/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 44.50 N LONG : 133 18.00 W

STATION	LAT	LONG	DATE
RC3-3	69 46.2 N	132 52.5 W	18:41 MDT ON 25/05/ 87

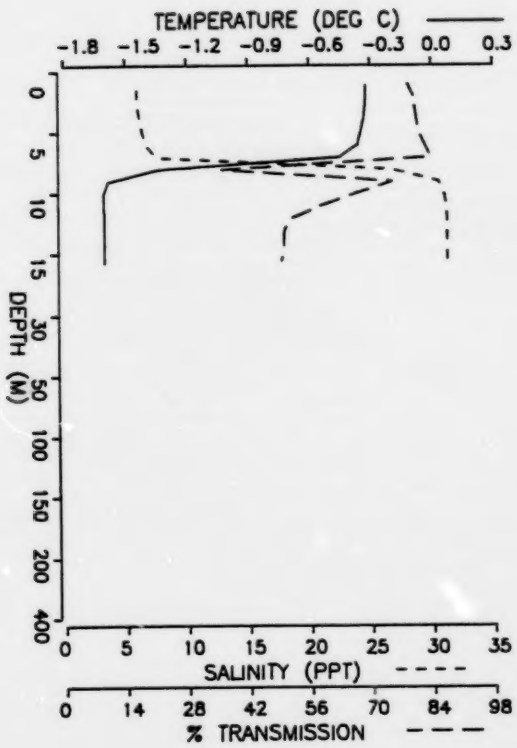
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.15	3.75	80.0	0.89	2.89	0.05	0.25
2.0	-0.20	3.94	79.8	0.90	3.04	0.02	0.49
3.0	-0.21	4.10	81.6	0.81	3.17	0.02	0.74
4.0	-0.23	4.43	82.4	0.77	3.44	0.02	0.98
5.0	-0.28	5.28	82.8	0.75	4.12	0.01	1.22
6.0	-0.45	7.73	81.2	0.83	6.10	-0.02	1.44
7.0	-1.17	23.20	52.1	2.61	18.60	0.09	1.60
8.0	-1.51	29.27	71.0	1.37	23.52	0.09	1.67
9.0	-1.53	29.47	67.1	1.60	23.68	0.09	1.71
10.0	-1.53	29.58	65.1	1.72	23.78	0.09	1.75

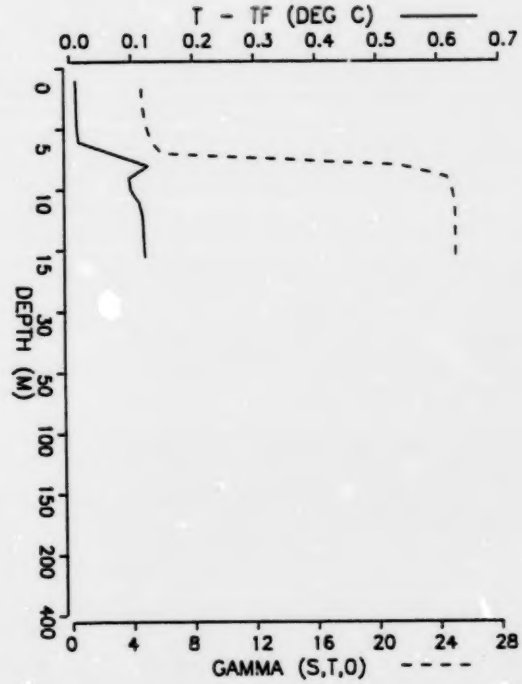

TEMPERATURE (DEG C)
-1.8 -1.5 -1.2 -0.9 -0.6 -0.3 0.0 0.3
DEPTH (M)
0 5 10 15 30 50 100 150 200 400
0 5 10 15 20 25 30 35
SALINITY (PPT)
0 14 28 42 56 70 84 98
% TRANSMISSION
T - TF (DEG C)
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7
0 4 8 12 16 20 24 28
GAMMA (S,T,0)
TEMPERATURE (DEG C)
SALINITY (PPT)
% TRANSMISSION
GAMMA (S,T,0)

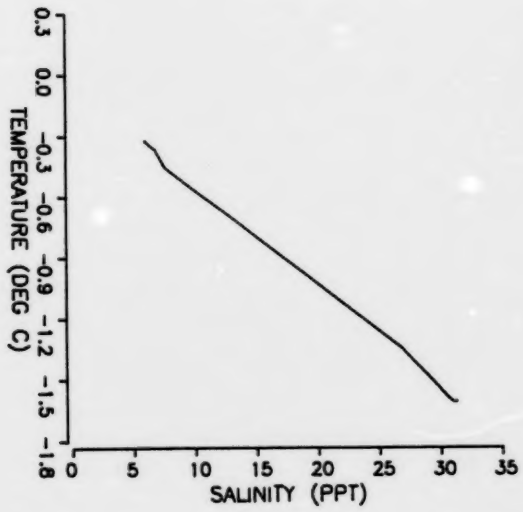
STATION RC3-3 CAST # 87045 DATE : 18:41 MDT ON 25/05/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 46.20 N LONG : 132 52.50 W

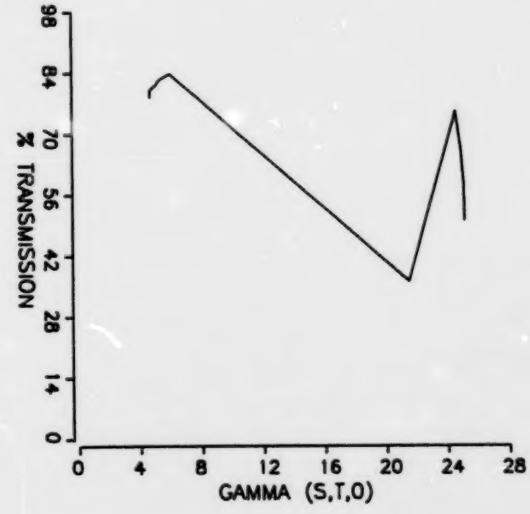
STATION	LAT	LONG	DATE
RC4-3	69 48.9 N	133 0.8 W	17:44 MDT ON 25/05/ 87

DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.32	6.02	78.6	0.96	4.72	0.01	0.23
2.0	-0.32	6.02	80.0	0.89	4.72	0.01	0.46
3.0	-0.32	6.08	80.3	0.88	4.77	0.01	0.69
4.0	-0.33	6.23	80.7	0.86	4.89	0.01	0.91
5.0	-0.34	6.46	81.2	0.84	5.08	0.01	1.14
6.0	-0.36	6.78	82.5	0.77	5.34	0.01	1.36
7.0	-0.45	7.65	83.9	0.70	6.04	-0.03	1.58
8.0	-1.34	26.84	36.2	4.07	21.54	0.13	1.72
9.0	-1.58	30.62	75.0	1.15	24.61	0.10	1.77
10.0	-1.60	31.04	66.5	1.63	24.96	0.10	1.80
12.0	-1.60	31.29	52.4	2.59	25.16	0.12	1.86
14.0	-1.60	31.30	50.4	2.74	25.17	0.12	1.92
16.0	-1.60	31.30	50.0	2.78	25.17	0.12	1.97
17.0	-1.60	31.30	49.7	2.79	25.17	0.12	2.00





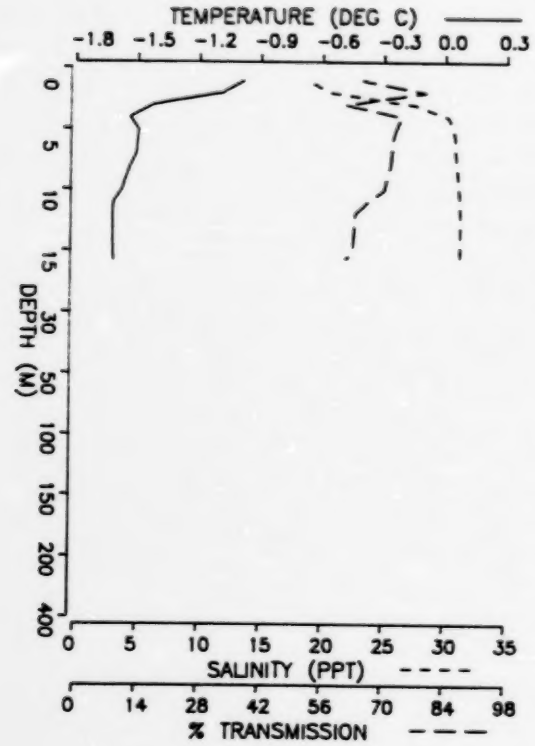


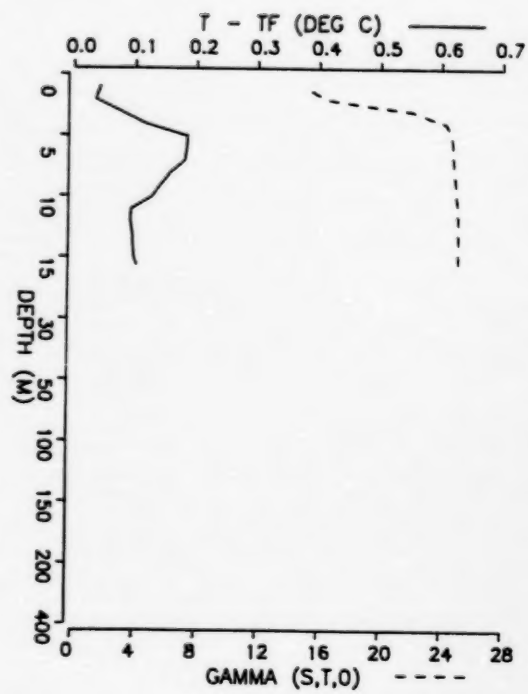


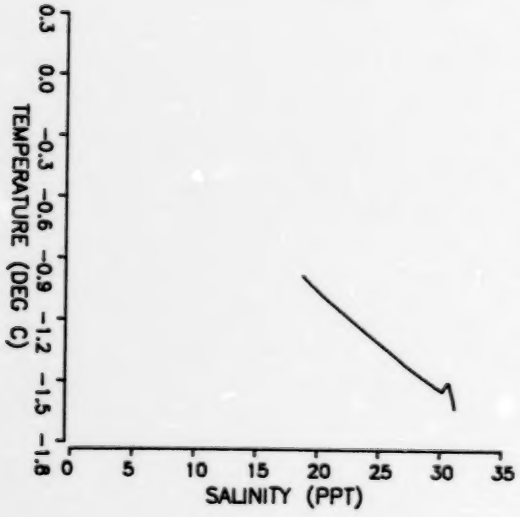
STATION RC4-3 CAST # 87044 DATE : 17:44 MDT ON 25/05/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 48.90 N LONG : 133 0.80 W

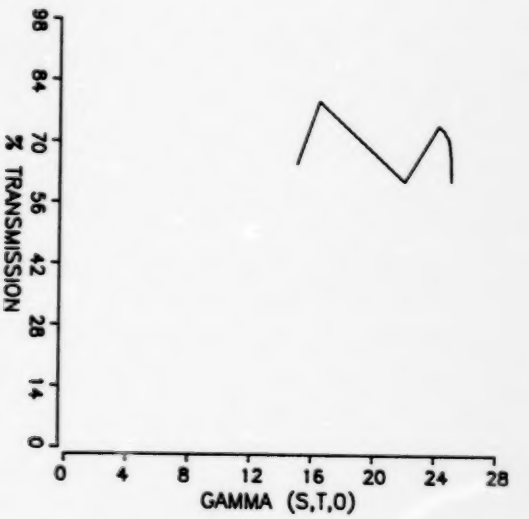
STATION	LAT	LONG	DATE
RC5-3	69 51.7 N	133 7.1 W	17:04 MDT ON 25 05 87

DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.98	18.86	65.2	1.71	15.09	0.04	0.13
2.0	-1.09	20.65	79.4	0.92	16.53	0.03	0.24
3.0	-1.43	27.52	61.2	1.96	22.10	0.07	0.33
4.0	-1.54	30.23	74.0	1.20	24.30	0.12	0.38
5.0	-1.50	30.68	72.7	1.27	24.66	0.18	0.41
6.0	-1.50	30.78	72.0	1.32	24.74	0.18	0.44
7.0	-1.51	30.82	71.8	1.33	24.78	0.18	0.48
8.0	-1.54	30.93	71.5	1.34	24.87	0.16	0.51
9.0	-1.56	31.00	70.7	1.39	24.93	0.14	0.54
10.0	-1.58	31.08	70.2	1.42	24.99	0.13	0.57
12.0	-1.62	31.22	63.5	1.81	25.10	0.09	0.63
14.0	-1.62	31.23	63.2	1.84	25.11	0.10	0.68
16.0	-1.62	31.24	62.6	1.87	25.12	0.10	0.74
17.0	-1.62	31.25	61.0	1.98	25.13	0.10	0.77





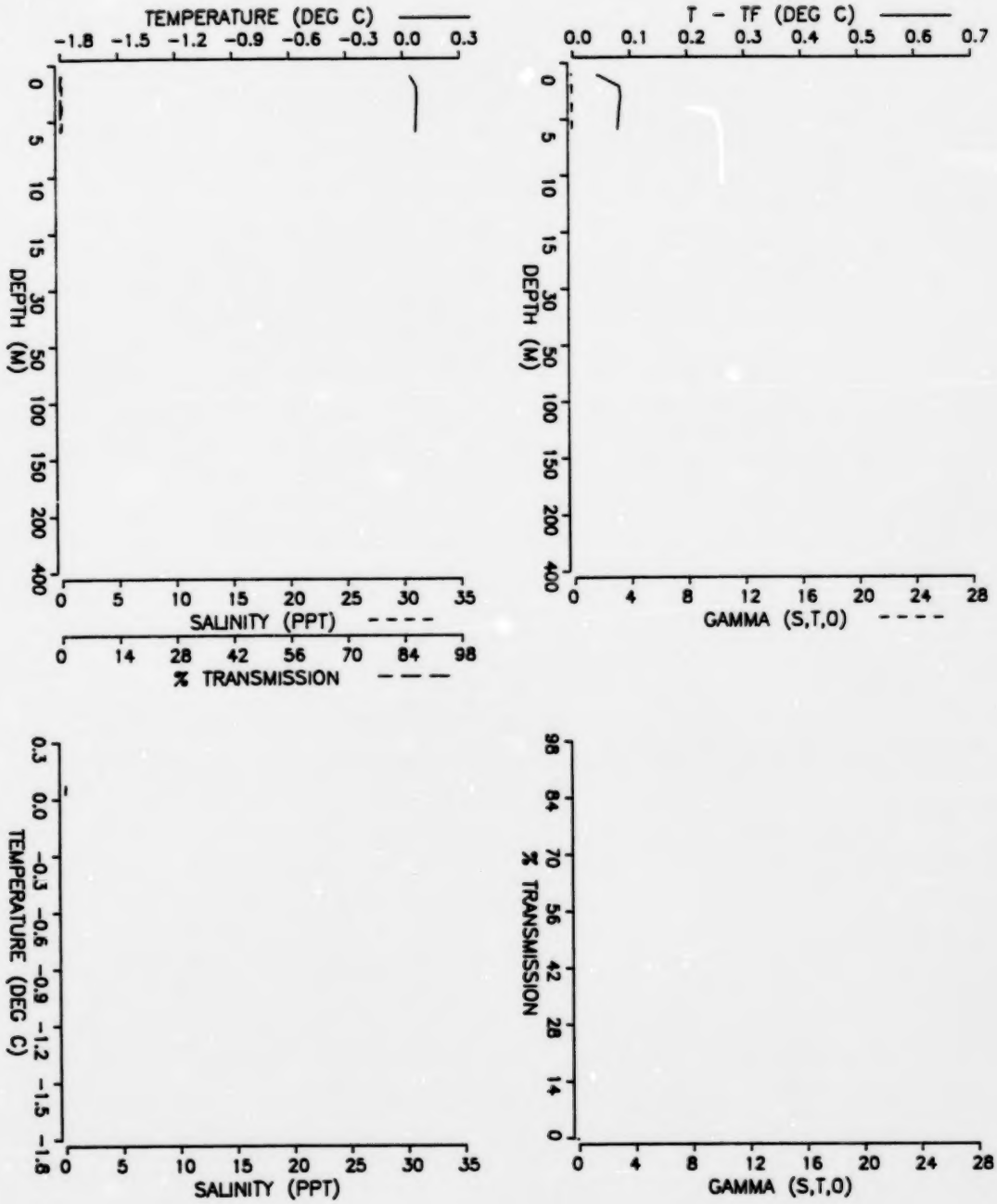




STATION RC5-3 CAST # 87043 DATE : 17:04 MDT ON 25/05/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 51.70 N LONG : 133 7.10 W

STATION	LAT	LONG	DATE
KT-4	69 23.6 N	133 52.0 W	20:03 MDT ON 02/06/ 87

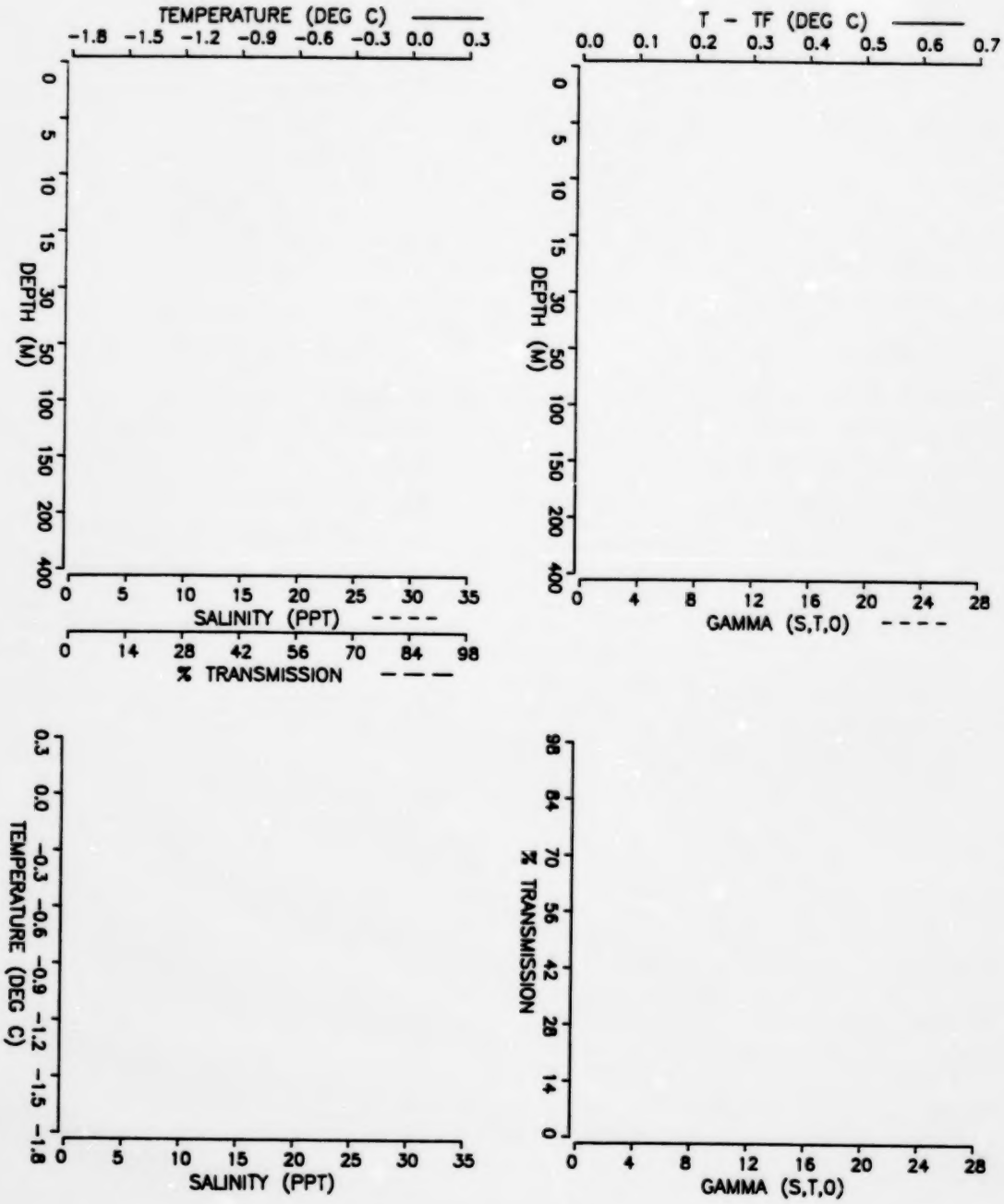
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	0.04	0.06	0.0	33.31	-0.10	0.04	0.28
2.0	0.07	0.10	0.0	36.42	-0.07	0.08	0.55
3.0	0.08	0.10	0.0	36.73	-0.07	0.08	0.83
4.0	0.07	0.10	0.0	37.05	-0.07	0.08	1.11
5.0	0.07	0.10	0.0	36.42	-0.07	0.08	1.38
6.0	0.07	0.10	0.0	37.28	-0.07	0.08	1.66



STATION KT-4 CAST # 87049 DATE : 20:03 MDT ON 02/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 23.60 N LONG : 133 52.00 W

STATION	LAT	LONG		DATE
0-4	69 20.2 N	133 54.7 W	19:18 MDT ON	02/06/ 87

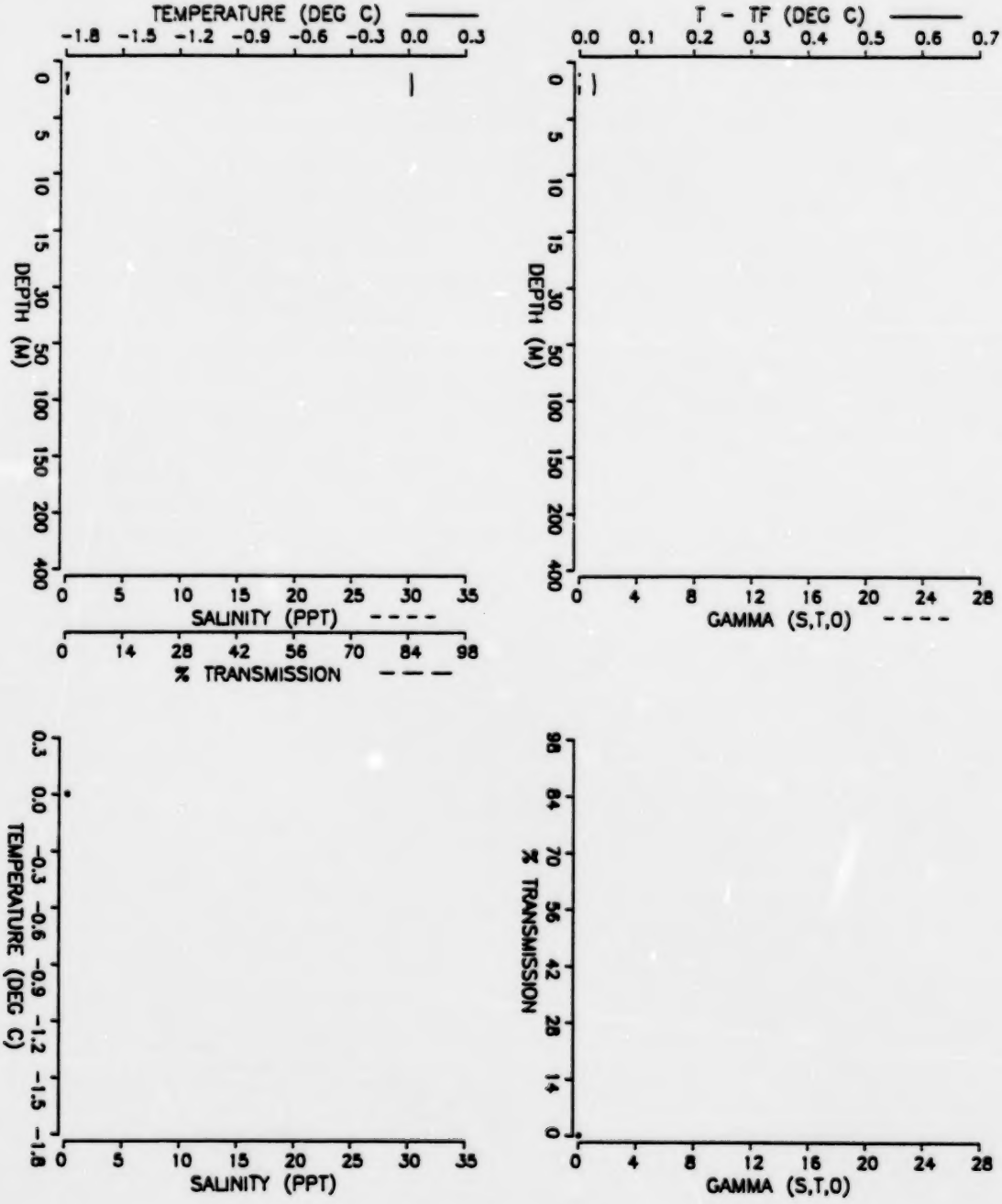
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
2.0	0.77	0.12	0.0	34.29	-0.01	0.78	0.55



STATION 0-4 CAST # 87048 DATE : 19:18 MDT ON 02/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 20.20 N LONG : 133 54.70 W

STATION	LAT	LONG	DATE
2-4	70 39.6 N	134 18.9 W	21:17 MDT ON 03/06/ 87

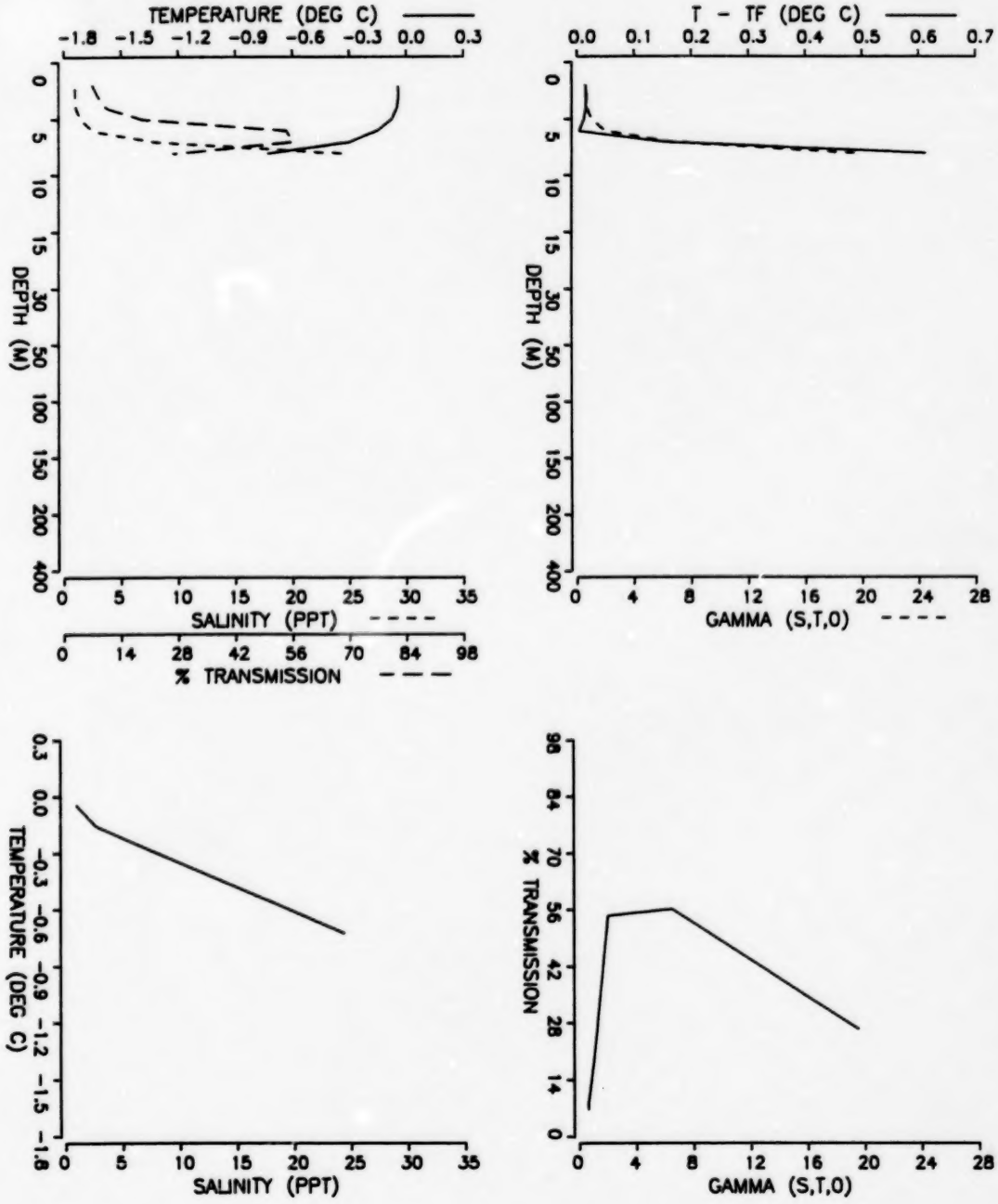
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	0.01	0.17	0.0	30.69	-0.02	0.02	0.28
2.0	0.02	0.14	0.0	30.62	-0.04	0.03	0.55
3.0	0.01	0.14	0.1	30.27	-0.04	0.02	0.83



STATION 2-4 CAST # 87059 DATE : 21:17 MDT ON 03/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 70 39.60 N LONG : 134 18.90 W

STATION	LAT	LONG	DATE
3-4	70 46.6 N	134 21.0 W	09:56 MDT ON 03/06/ 87

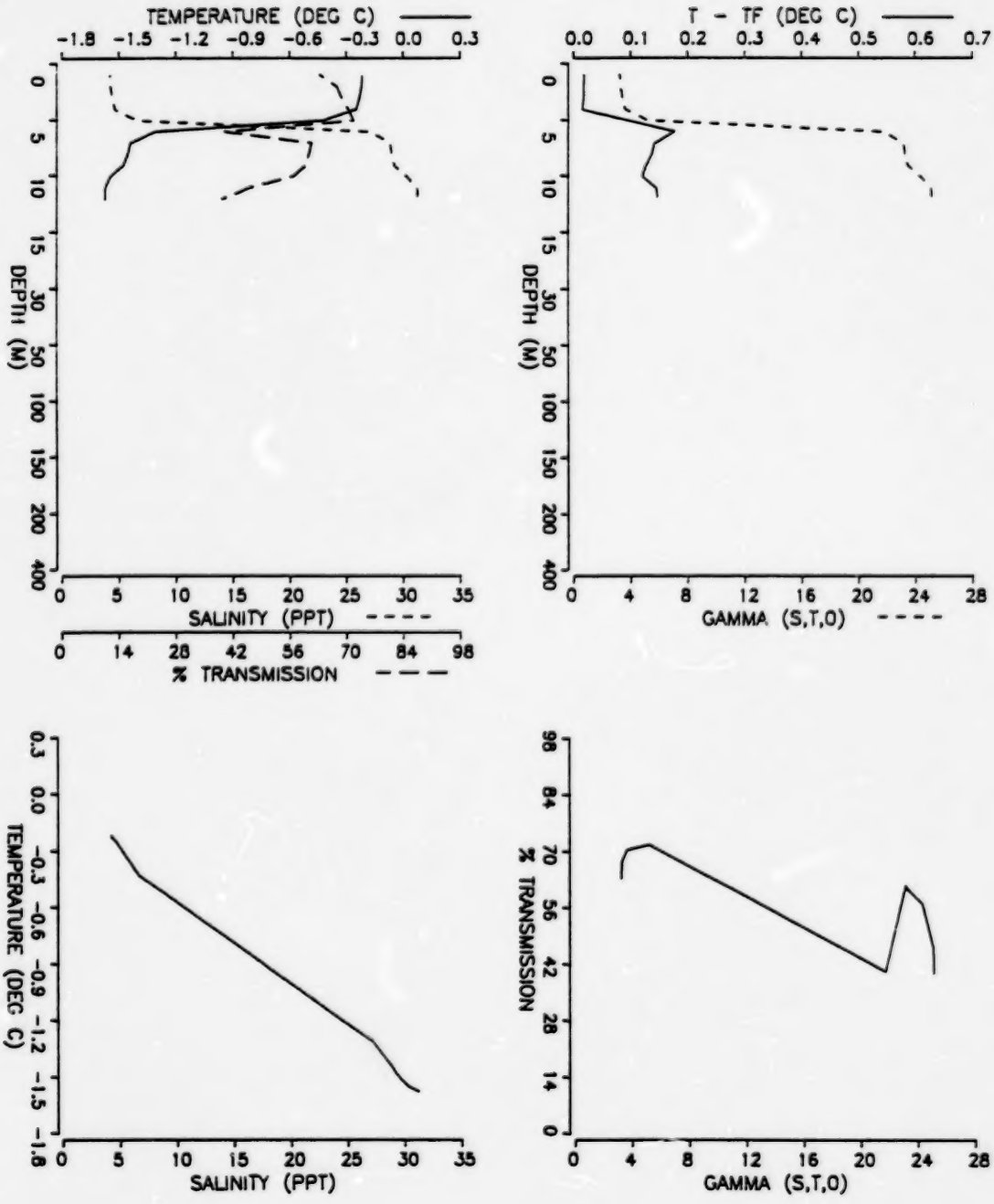
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
2.0	-0.04	0.97	7.1	10.58	0.64	0.02	0.54
3.0	-0.04	0.96	8.4	9.89	0.63	0.02	0.81
4.0	-0.05	1.07	10.6	8.98	0.71	0.02	1.08
5.0	-0.07	1.48	19.8	6.49	1.05	0.01	1.35
6.0	-0.15	2.67	54.6	2.42	2.01	0.00	1.61
7.0	-0.30	8.25	56.3	2.30	6.53	0.16	1.84
8.0	-0.72	24.52	26.5	5.31	19.67	0.62	1.99



STATION 3-4 CAST # 87060 DATE : 09:56 MDT ON 03/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 70 46.60 N LONG : 134 21.00 W

STATION	LAT	LONG	DATE
3-4A	70 50.0 N	134 22.5 W	13:55 MDT ON 03/06/ 87

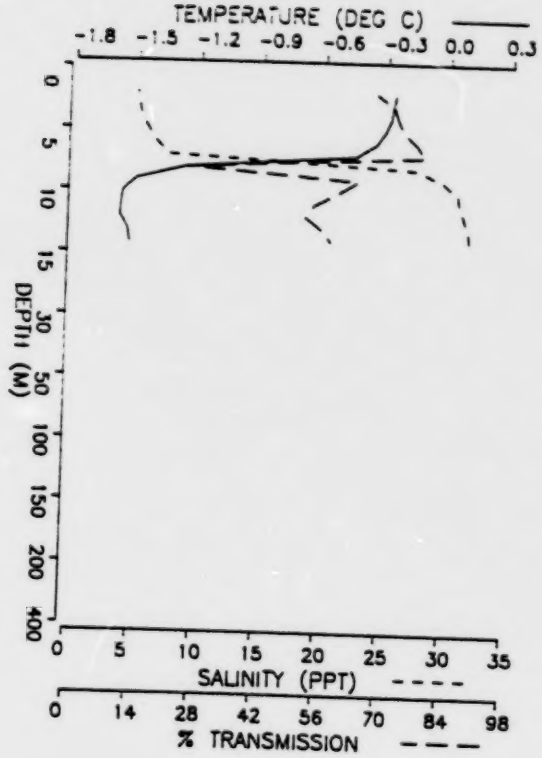
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.21	4.22	63.6	1.81	3.27	0.02	0.24
2.0	-0.22	4.26	67.6	1.56	3.30	0.02	0.49
3.0	-0.23	4.44	68.9	1.49	3.45	0.02	0.73
4.0	-0.24	4.69	70.5	1.40	3.65	0.02	0.97
5.0	-0.42	6.67	71.8	1.32	5.25	-0.05	1.20
6.0	-1.31	27.15	40.2	3.64	21.80	0.18	1.34
7.0	-1.44	28.90	61.5	1.95	23.22	0.14	1.40
8.0	-1.45	29.03	60.9	1.99	23.32	0.14	1.44
9.0	-1.48	29.27	60.0	2.04	23.52	0.13	1.49
10.0	-1.54	30.34	57.0	2.25	24.39	0.12	1.53
12.0	-1.57	31.33	39.4	3.73	25.19	0.15	1.59

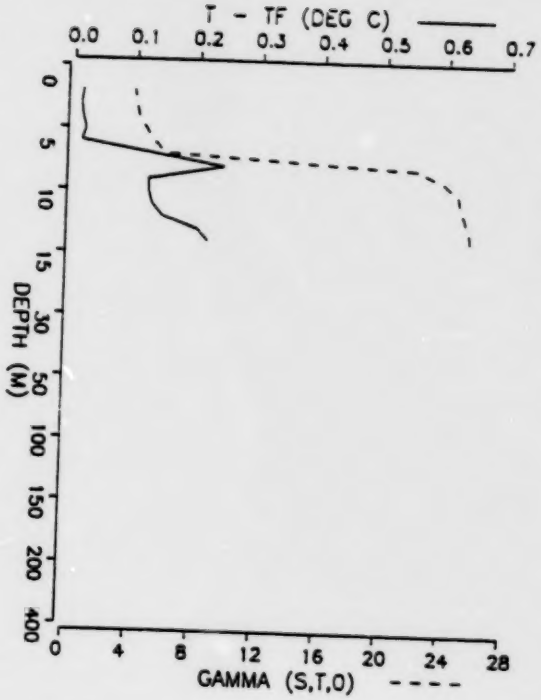


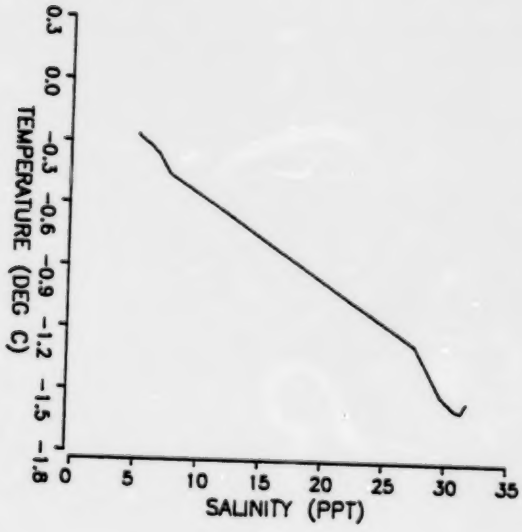
STATION 3-4A CAST # 87052 DATE : 13:55 MDT ON 03/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 70 50.00 N LONG : 134 22.50 W

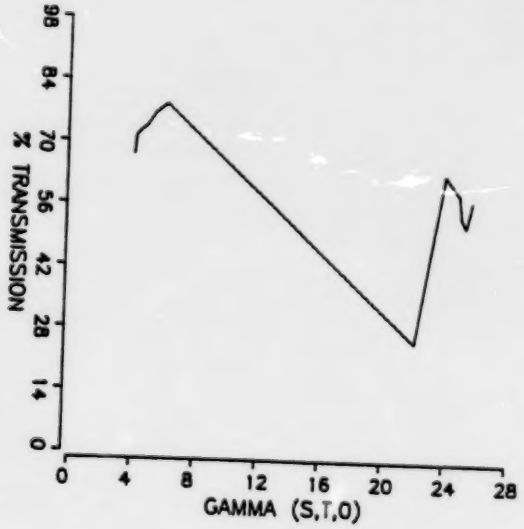
STATION	LAT	LONG		DATE
4-4	70 53.5 N	134 24.0 W	10:48 MDT ON	03 06 87

DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
2.0	-0.26	4.97	67.6	1.57	3.88	0.01	0.47
3.0	-0.27	5.12	71.4	1.35	4.00	0.01	0.71
4.0	-0.28	5.34	72.3	1.30	4.18	0.01	0.95
5.0	-0.31	5.94	73.8	1.22	4.66	0.02	1.18
6.0	-0.35	6.59	76.6	1.06	5.19	0.01	1.40
7.0	-0.45	7.55	78.6	0.96	5.96	-0.03	1.62
8.0	-1.26	27.49	25.6	5.44	22.08	0.24	1.76
9.0	-1.50	29.64	63.7	1.80	23.82	0.12	1.81
10.0	-1.57	30.77	59.3	2.09	24.74	0.12	1.85
12.0	-1.58	31.32	52.1	2.61	25.18	0.14	1.91
14.0	-1.53	31.79	58.0	2.18	25.56	0.22	1.96





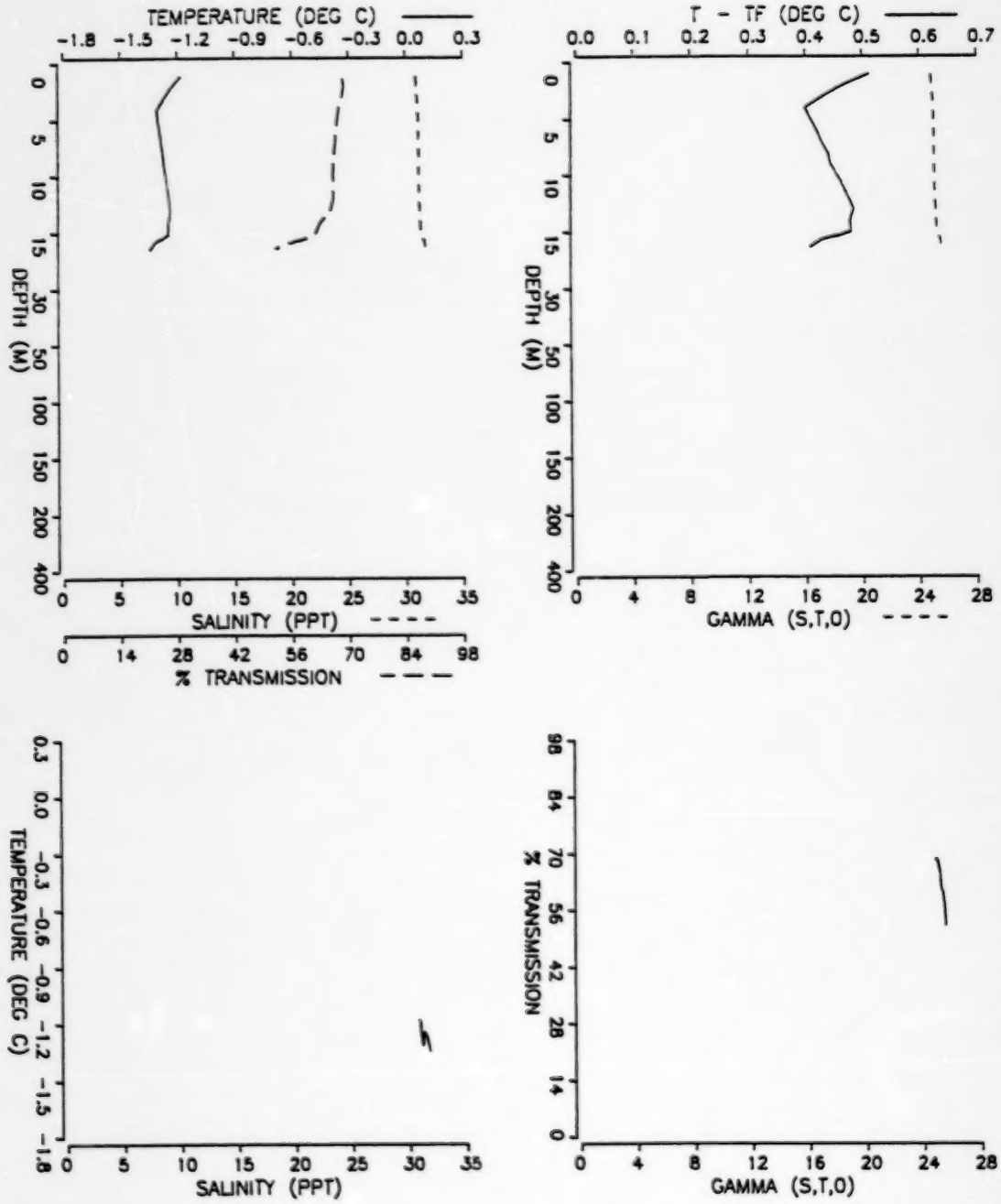




STATION 4-4 CAST # 87061 DATE : 10:48 MDT ON 03/06/ 87
WATER DEPTH UNKNOWN
LAT : 70 53.50 N LONG : 134 24.00 W INSTRUMENT : APPL MICROSYS CTD

STATION	LAT	LONG	DATE
4A-4	70 58.5 N	134 24.4 W	11:22 MDT ON 03/06/ 87

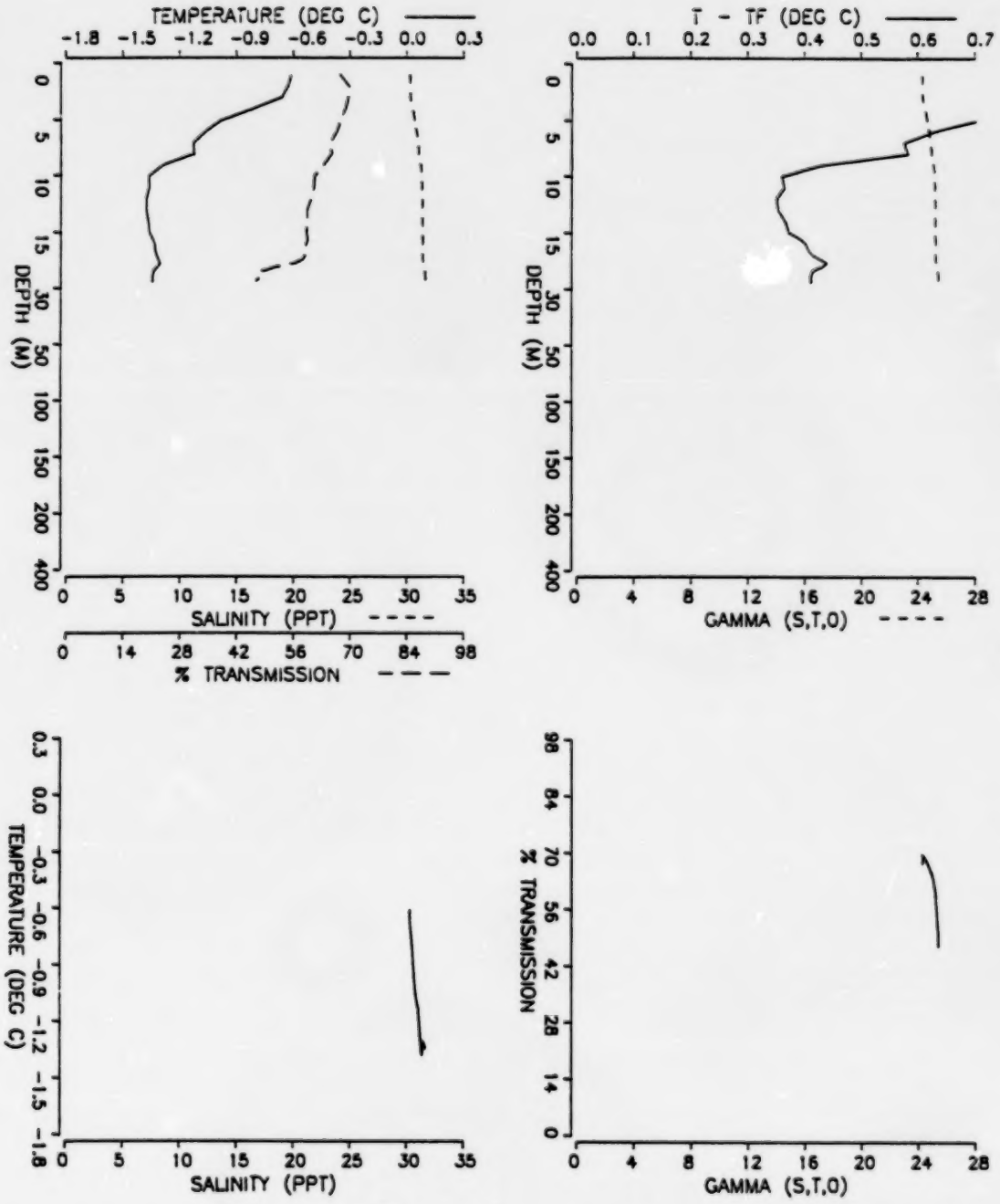
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-1.18	30.94	68.5	1.51	24.87	0.51	0.03
2.0	-1.23	30.98	68.9	1.49	24.90	0.47	0.06
3.0	-1.27	31.07	68.4	1.52	24.97	0.43	0.09
4.0	-1.31	31.15	67.7	1.56	25.04	0.40	0.12
5.0	-1.30	31.17	67.3	1.59	25.06	0.41	0.15
6.0	-1.29	31.18	67.0	1.60	25.06	0.42	0.18
7.0	-1.28	31.19	66.8	1.61	25.07	0.43	0.21
8.0	-1.27	31.20	66.5	1.63	25.08	0.44	0.24
9.0	-1.27	31.21	66.3	1.64	25.09	0.45	0.27
10.0	-1.26	31.21	66.3	1.65	25.09	0.46	0.30
12.0	-1.24	31.24	66.3	1.64	25.11	0.48	0.35
14.0	-1.25	31.35	63.1	1.84	25.20	0.48	0.41
16.0	-1.28	31.54	60.4	2.01	25.36	0.46	0.47
18.0	-1.33	31.74	53.8	2.48	25.52	0.42	0.52
19.0	-1.34	31.79	51.8	2.63	25.56	0.41	0.54


TEMPERATURE (DEG C)
-1.8 -1.5 -1.2 -0.9 -0.6 -0.3 0.0 0.3
DEPTH (M)
0 5 10 15 30 50 100 150 200 400
0 5 10 15 20 25 30 35
SALINITY (PPT)
0 14 28 42 56 70 84 98
% TRANSMISSION
T - TF (DEG C)
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7
0 4 8 12 16 20 24 28
GAMMA (S,T,0)
TEMPERATURE (DEG C)
SALINITY (PPT)
% TRANSMISSION
GAMMA (S,T,0)

STATION 4A-4 CAST # 87062 DATE : 11:22 MDT ON 03/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 70 58.50 N LONG : 134 24.40 W

STATION	LAT	LONG	DATE
5-4	70 1.1 N	134 26.8 W	11:43 MDT ON 03/06/ 87

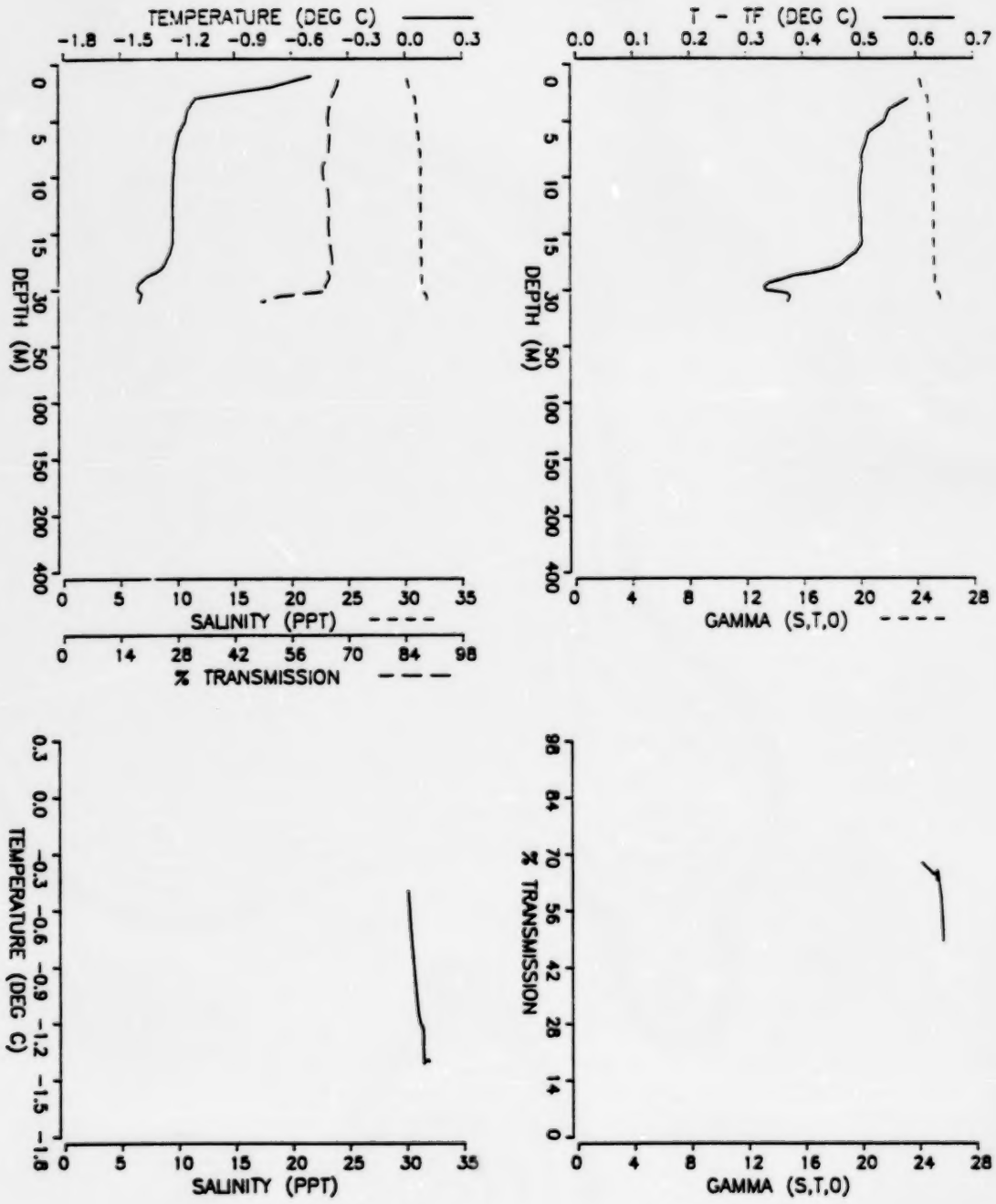
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.61	30.32	67.6	1.57	24.35	1.05	0.04
2.0	-0.63	30.32	69.7	1.44	24.35	1.03	0.07
3.0	-0.66	30.33	69.6	1.45	24.36	1.00	0.11
4.0	-0.81	30.55	68.9	1.49	24.54	0.86	0.14
5.0	-0.98	30.72	67.6	1.56	24.69	0.70	0.18
6.0	-1.06	30.86	66.8	1.62	24.80	0.63	0.21
7.0	-1.13	31.05	65.1	1.71	24.95	0.58	0.24
8.0	-1.12	31.07	65.4	1.70	24.97	0.58	0.27
9.0	-1.29	31.25	63.4	1.82	25.12	0.43	0.30
10.0	-1.36	31.35	61.3	1.96	25.21	0.36	0.33
12.0	-1.37	31.39	60.5	2.01	25.24	0.35	0.38
14.0	-1.36	31.42	59.5	2.08	25.26	0.37	0.44
16.0	-1.35	31.42	59.5	2.08	25.26	0.38	0.49
18.0	-1.33	31.43	59.2	2.10	25.27	0.40	0.55
20.0	-1.33	31.43	59.2	2.10	25.27	0.41	0.60
22.0	-1.31	31.44	58.3	2.16	25.28	0.43	0.65
24.0	-1.32	31.60	51.4	2.67	25.41	0.43	0.71
26.0	-1.34	31.67	47.4	2.99	25.46	0.41	0.76
28.0	-1.34	31.67	46.6	3.05	25.46	0.41	0.81



STATION 5-4 CAST # 87063 DATE : 11:43 MDT ON 03/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 70 1.10 N LONG : 134 26.80 W

STATION	LAT	LONG	DATE
6-4	69 7.0 N	134 28.0 W	12:00 MDT ON 03/06/ 87

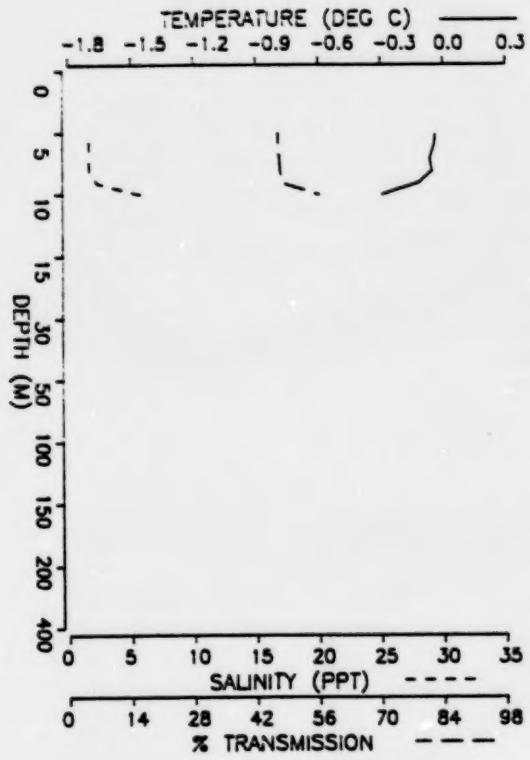
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.49	30.15	67.9	1.55	24.21	1.16	0.04
2.0	-0.71	30.37	67.2	1.59	24.40	0.95	0.07
3.0	-1.10	30.92	65.7	1.68	24.85	0.59	0.11
4.0	-1.14	30.99	65.3	1.71	24.91	0.55	0.14
5.0	-1.16	31.06	65.0	1.72	24.96	0.54	0.17
6.0	-1.19	31.16	65.5	1.70	25.04	0.52	0.20
7.0	-1.20	31.27	65.3	1.70	25.13	0.51	0.23
8.0	-1.22	31.34	65.1	1.72	25.19	0.50	0.26
9.0	-1.22	31.36	63.7	1.81	25.21	0.51	0.28
10.0	-1.22	31.37	63.8	1.80	25.22	0.50	0.31
12.0	-1.22	31.38	65.3	1.71	25.23	0.50	0.37
14.0	-1.22	31.38	65.1	1.72	25.23	0.50	0.42
16.0	-1.22	31.39	65.6	1.69	25.23	0.50	0.48
18.0	-1.23	31.39	65.5	1.69	25.24	0.50	0.53
20.0	-1.24	31.40	65.7	1.68	25.25	0.49	0.59
22.0	-1.26	31.42	66.0	1.66	25.26	0.48	0.64
24.0	-1.28	31.43	65.8	1.68	25.26	0.45	0.70
26.0	-1.36	31.45	65.4	1.70	25.29	0.38	0.75
28.0	-1.40	31.46	64.6	1.75	25.30	0.34	0.80
30.0	-1.41	31.49	65.0	1.72	25.32	0.33	0.86
34.0	-1.40	31.94	48.4	2.90	25.68	0.37	0.95

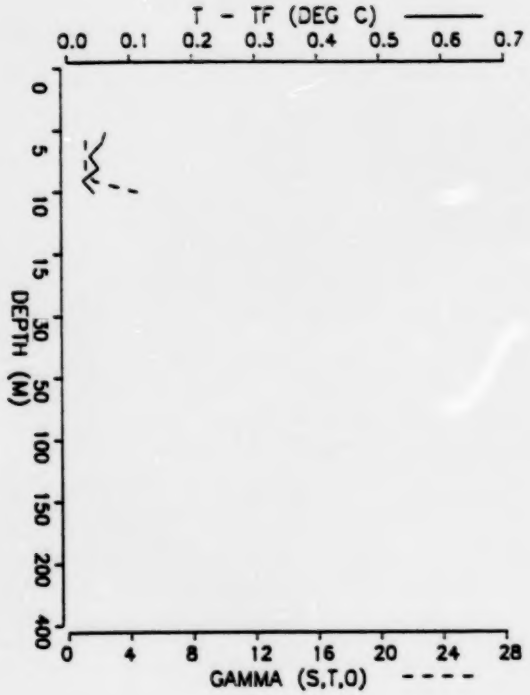


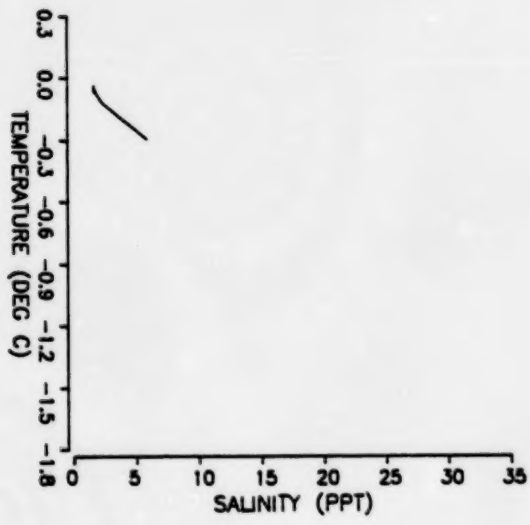
STATION 6-4 CAST # 87064 DATE : 12:00 MDT ON 03/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 7.00 N LONG : 134 28.00 W

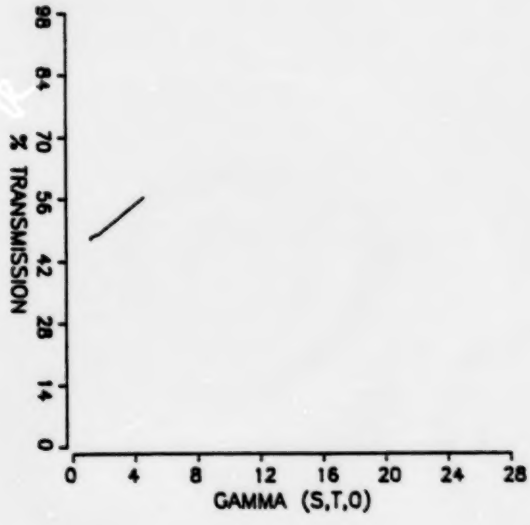
STATION	LAT	LONG	DATE
IM1-4	69 51.0 N	133 52.0 W	15:03 MDT ON 03/06/ 87

DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
5.0	-0.03	1.66	47.3	3.00	1.20	0.06	1.32
6.0	-0.04	1.66	47.1	3.01	1.20	0.06	1.58
7.0	-0.06	1.67	47.5	2.98	1.20	0.04	1.85
8.0	-0.05	1.67	47.6	2.97	1.20	0.05	2.11
9.0	-0.11	2.33	48.3	2.91	1.74	0.02	2.37
10.0	-0.29	5.97	56.7	2.27	4.68	0.04	2.62





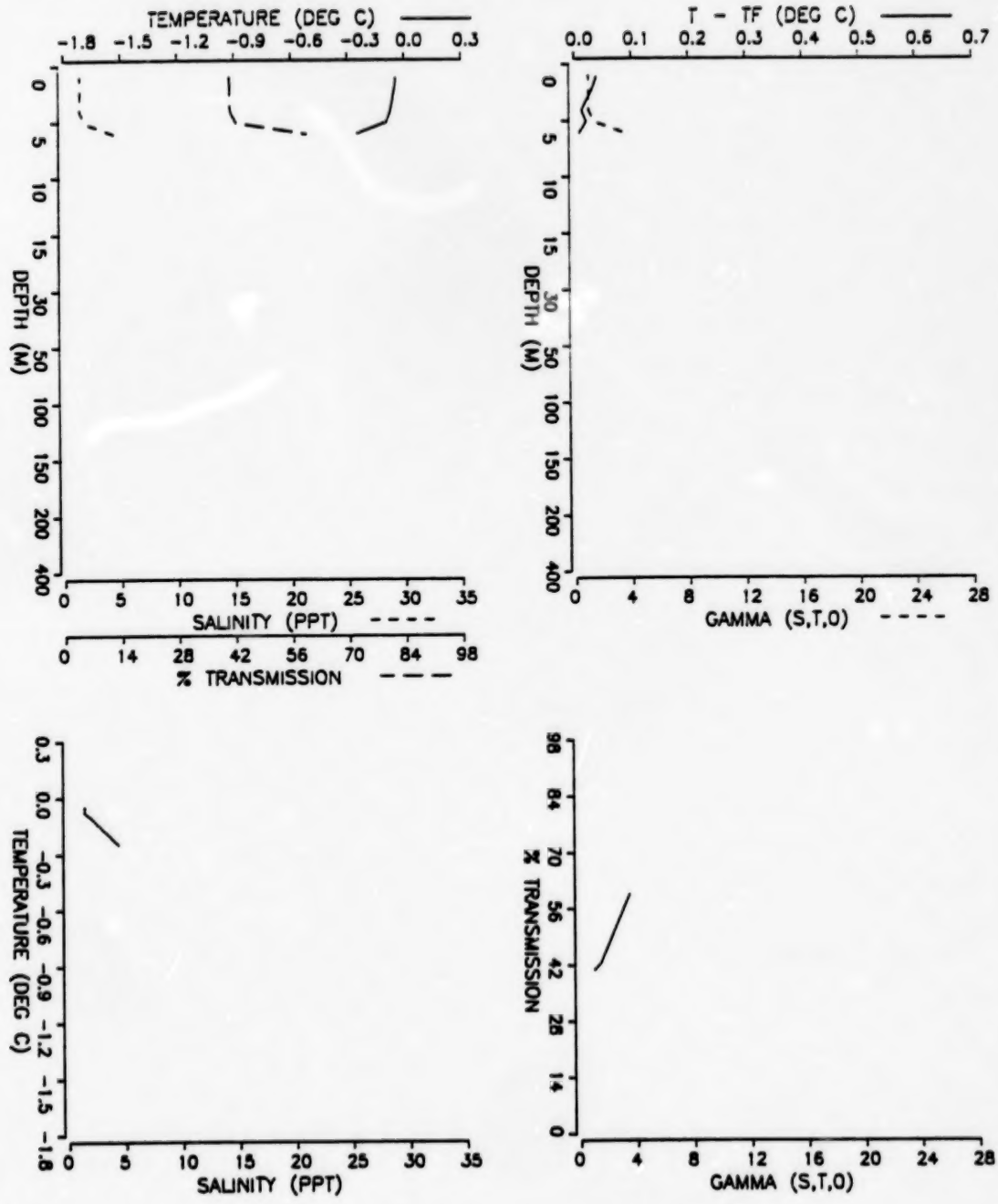




STATION IM1-4 CAST # 87053 DATE : 15:03 MDT ON 03/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 51.00 N LONG : 133 52.00 W

STATION	LAT	LONG	DATE
IM2-4	69 52.1 N	133 53.5 W	15:32 MDT ON 03/06/ 87

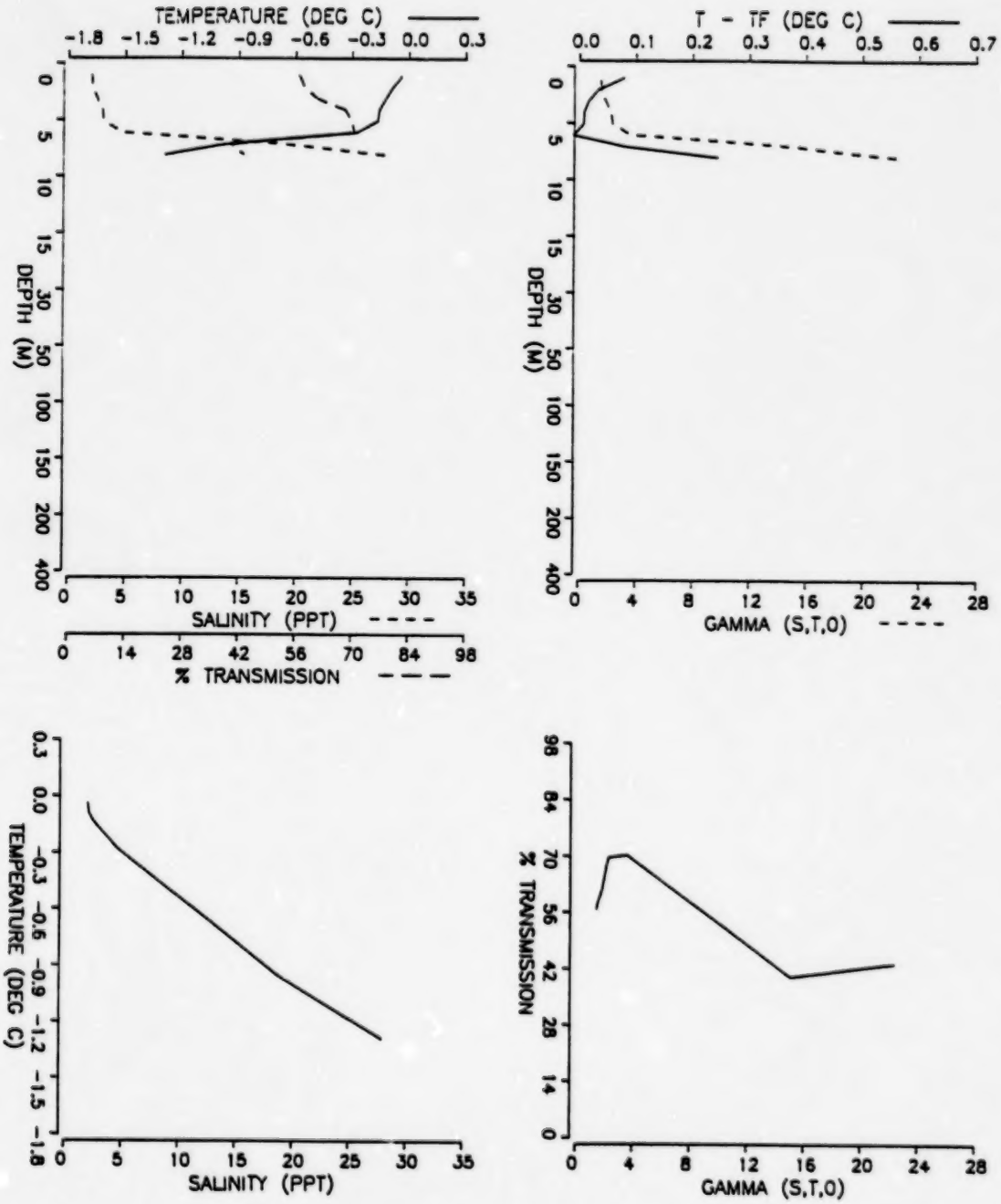
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.04	1.45	41.1	3.56	1.02	0.04	0.27
2.0	-0.05	1.44	41.1	3.55	1.02	0.03	0.53
3.0	-0.06	1.44	41.1	3.55	1.02	0.02	0.80
4.0	-0.07	1.44	41.2	3.55	1.01	0.01	1.06
5.0	-0.09	1.97	42.7	3.40	1.45	0.02	1.33
6.0	-0.25	4.56	60.2	2.03	3.54	0.01	1.58



STATION IM2-4 CAST # 87054 DATE : 15:32 MDT ON 03/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 52.10 N LONG : 133 53.50 W

STATION	LAT	LONG	DATE
IM3-4	69 53.5 N	133 57.0 W	15:53 MDT ON 03/06/ 87

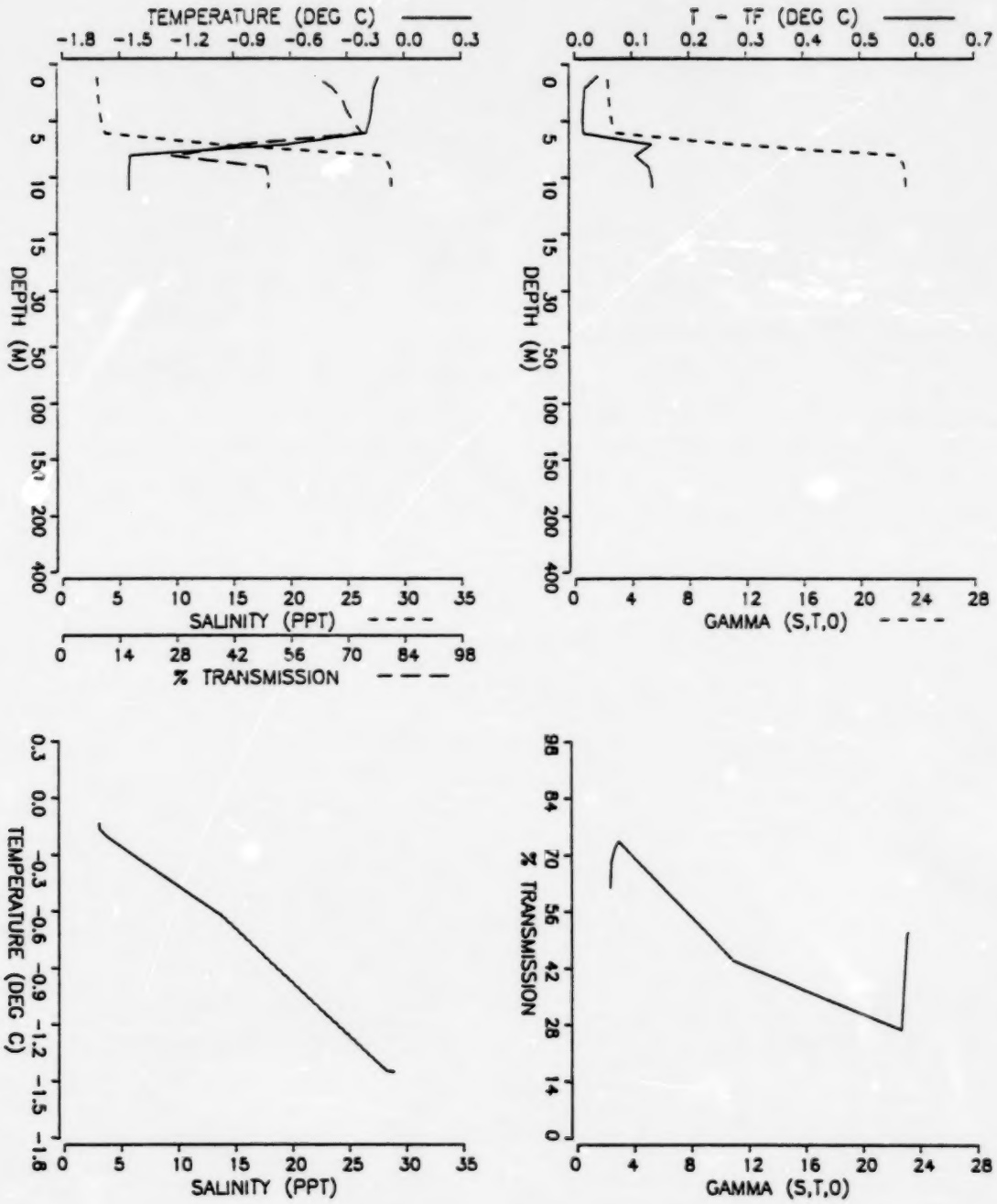
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.04	2.02	57.0	2.25	1.49	0.08	0.26
2.0	-0.08	2.09	58.2	2.16	1.55	0.03	0.52
3.0	-0.12	2.45	61.2	1.96	1.84	0.02	0.78
4.0	-0.16	2.93	68.1	1.53	2.22	0.01	1.04
5.0	-0.17	3.06	69.8	1.44	2.33	0.01	1.29
6.0	-0.27	4.67	70.4	1.41	3.63	-0.01	1.54
7.0	-0.95	18.95	40.2	3.65	15.16	0.08	1.72
8.0	-1.29	28.05	43.5	3.33	22.53	0.25	1.81



STATION IM3-4 CAST # 87055 DATE : 15:53 MDT ON 03/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 53.50 N LONG : 133 57.00 W

STATION	LAT	LONG	DATE
IM4-4	69 54.6 N	133 59.5 W	18:36 MDT ON 03/06/ 87

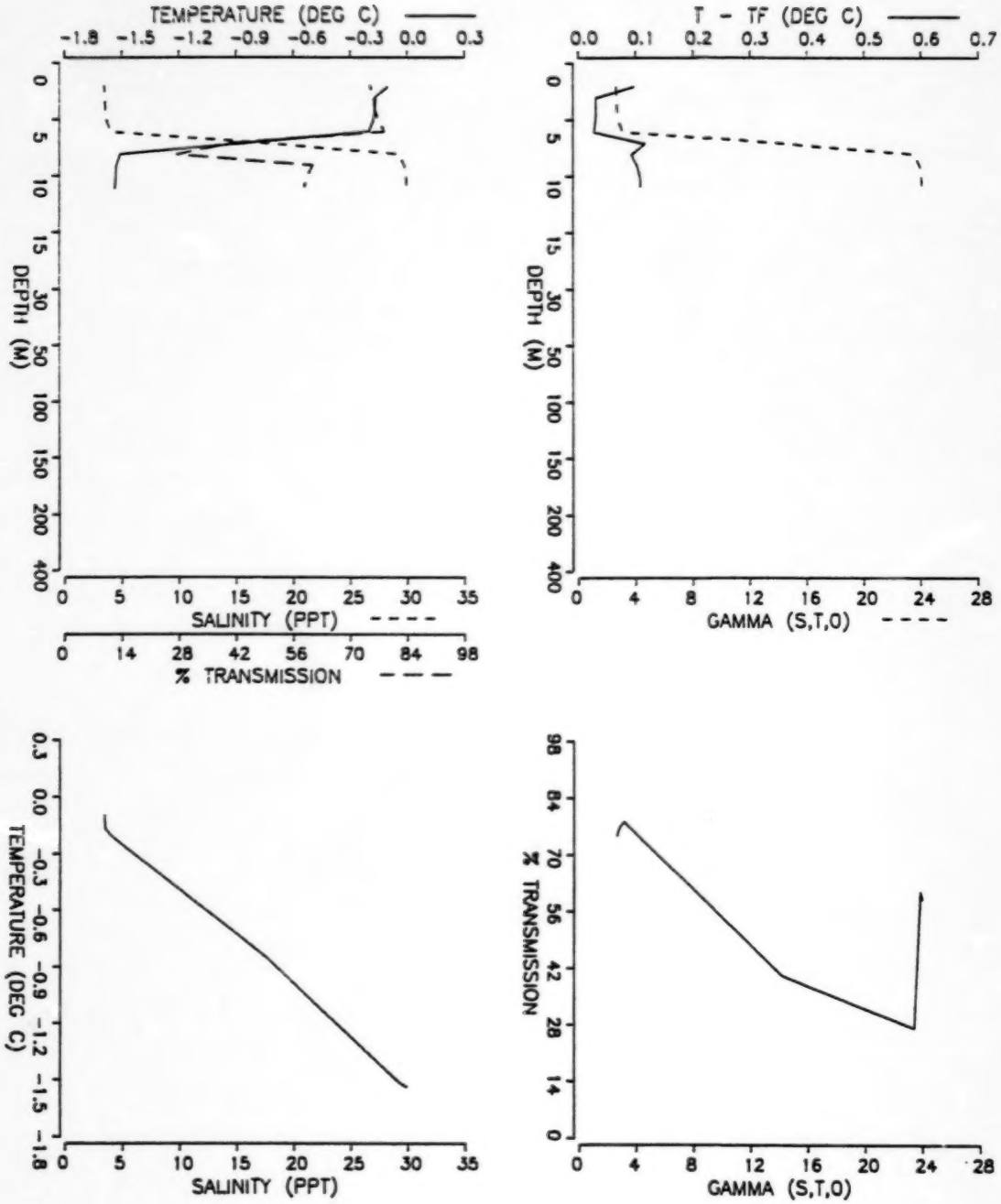
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.13	3.08	62.3	1.89	2.35	0.04	0.25
2.0	-0.16	3.13	66.4	1.64	2.38	0.02	0.50
3.0	-0.16	3.20	68.9	1.49	2.44	0.02	0.76
4.0	-0.17	3.29	69.9	1.43	2.52	0.02	1.01
5.0	-0.18	3.45	71.6	1.34	2.64	0.01	1.26
6.0	-0.20	3.79	73.7	1.22	2.92	0.02	1.51
7.0	-0.61	13.73	44.1	3.28	10.95	0.13	1.71
8.0	-1.44	28.31	27.0	5.24	22.74	0.11	1.82
9.0	-1.45	28.81	50.3	2.75	23.14	0.13	1.87
10.0	-1.45	28.90	51.0	2.69	23.22	0.14	1.92
11.0	-1.45	28.93	50.7	2.71	23.24	0.14	1.97



STATION IM4-4 CAST # 87056 DATE : 18:36 MDT ON 03/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 54.60 N LONG : 133 59.50 W

STATION	LAT	LONG	DATE
IM5-4	69 55.7 N	134 3.2 W	19:24 MDT ON 03/06/ 87

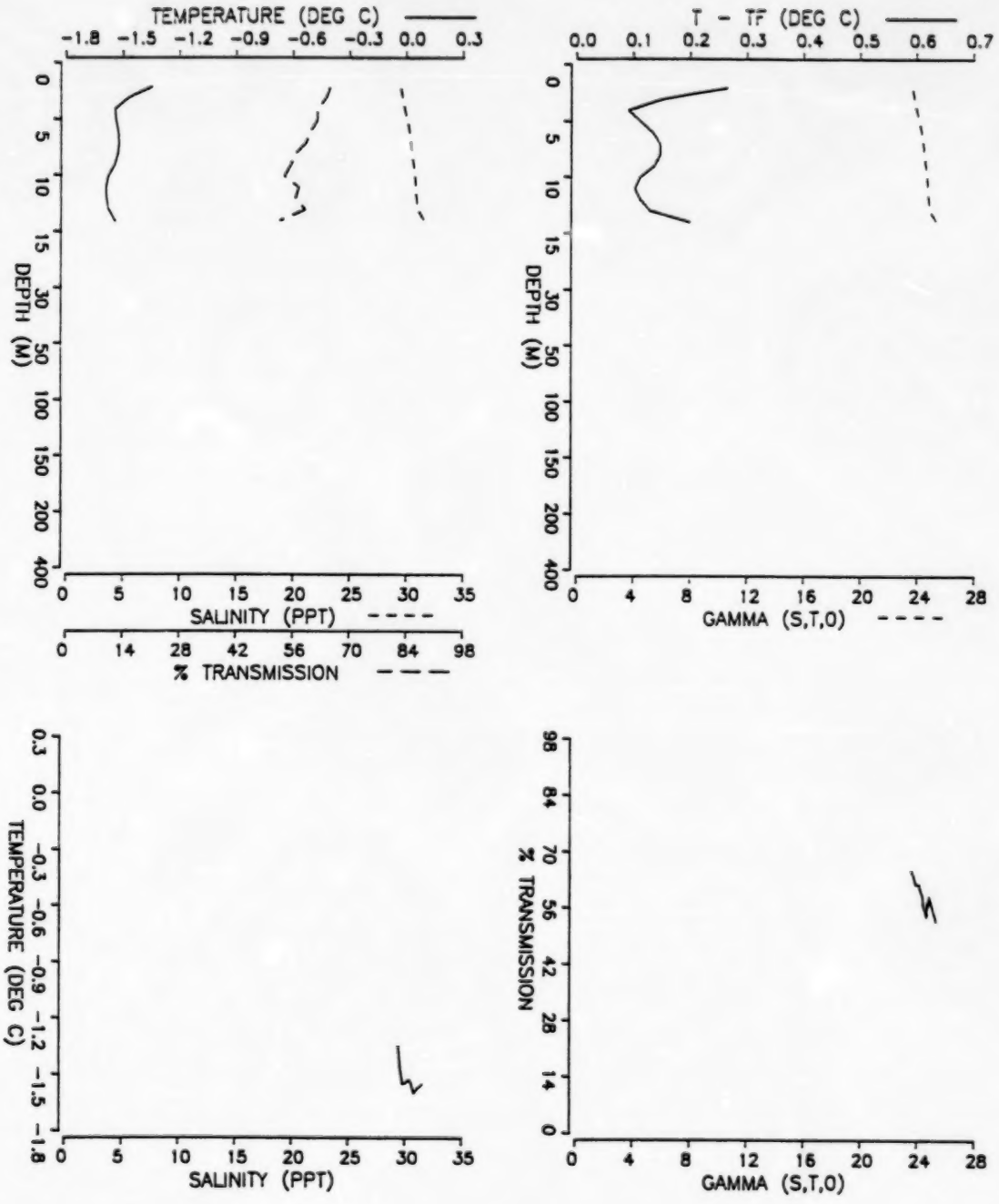
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
2.0	-0.10	3.48	74.9	1.15	2.67	0.10	0.50
3.0	-0.17	3.52	75.7	1.11	2.70	0.03	0.75
4.0	-0.17	3.55	76.0	1.10	2.73	0.03	1.00
5.0	-0.18	3.67	76.9	1.05	2.83	0.03	1.24
6.0	-0.20	4.06	78.3	0.98	3.14	0.03	1.49
7.0	-0.85	17.79	40.4	3.63	14.22	0.12	1.68
8.0	-1.51	29.23	27.4	5.17	23.49	0.09	1.77
9.0	-1.53	29.77	60.9	1.98	23.93	0.10	1.81
10.0	-1.53	29.91	59.4	2.08	24.04	0.11	1.85
11.0	-1.54	29.97	58.9	2.12	24.09	0.11	1.89



STATION IM5-4 CAST # 87057 DATE : 19:24 MDT ON 03/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 55.70 N LONG : 134 3.20 W

STATION	LAT	LONG	DATE
IM6-4	69 56.8 N	134 2.8 W	20:59 MDT ON 03/06/ 87

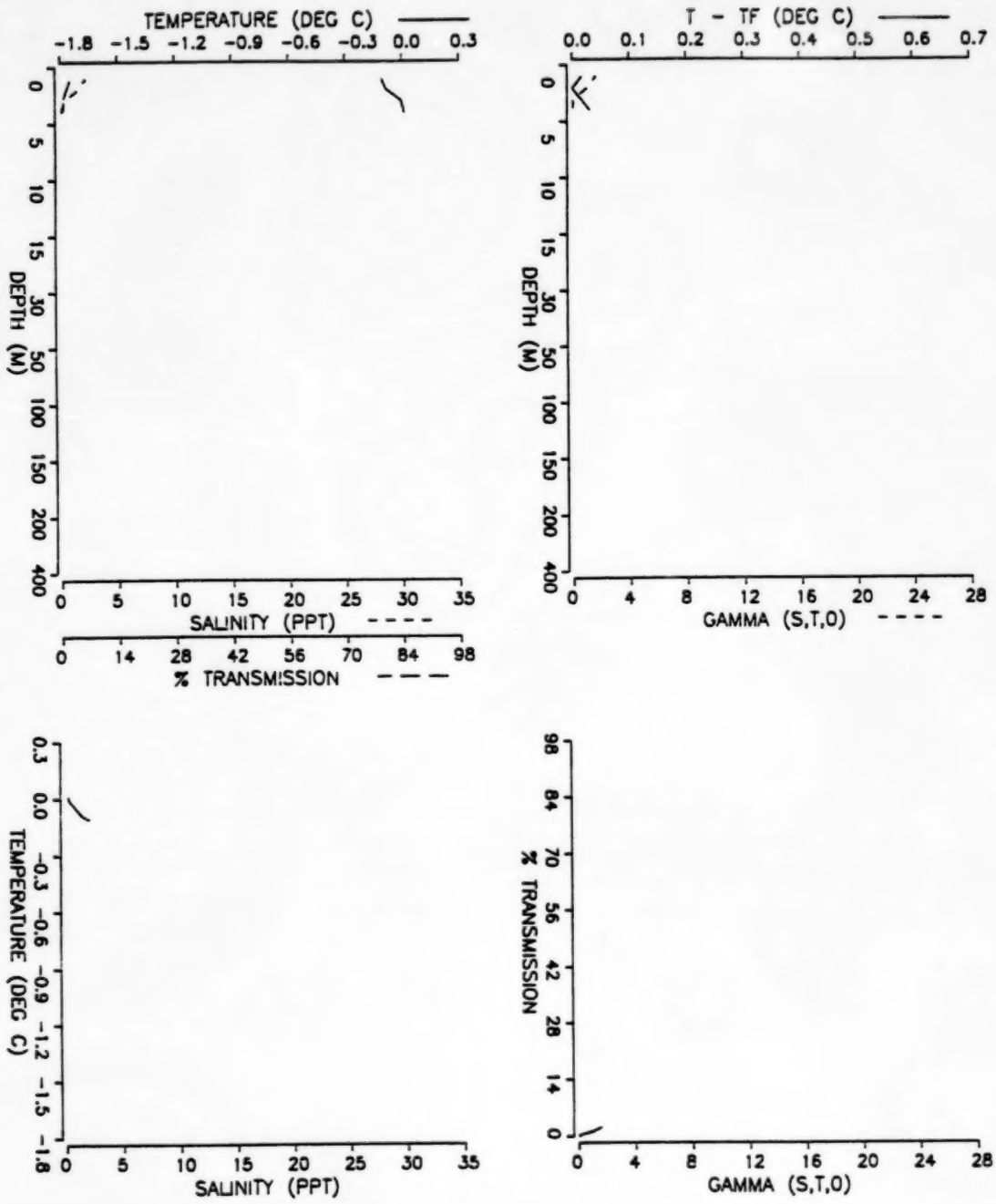
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
2.0	-1.34	29.50	65.3	1.71	23.70	0.27	0.08
3.0	-1.47	29.65	64.2	1.77	23.83	0.15	0.13
4.0	-1.54	29.86	62.1	1.91	24.00	0.09	0.17
5.0	-1.54	30.13	62.0	1.91	24.22	0.11	0.20
6.0	-1.52	30.28	60.3	2.02	24.34	0.13	0.24
7.0	-1.52	30.45	59.2	2.09	24.48	0.15	0.28
8.0	-1.53	30.52	56.5	2.28	24.54	0.15	0.31
9.0	-1.54	30.65	55.6	2.35	24.64	0.14	0.35
10.0	-1.58	30.78	54.0	2.47	24.75	0.11	0.38
12.0	-1.59	30.91	56.8	2.26	24.85	0.11	0.44
14.0	-1.54	31.63	52.6	2.57	25.43	0.20	0.50



STATION IM6-4 CAST # 87058 DATE : 20:59 MDT ON 03/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 56.80 N LONG : 134 2.80 W

STATION	LAT	LONG	DATE
X1-4	69 44.8 N	132 29.0 W	15:25 MDT ON 04/06/ 87

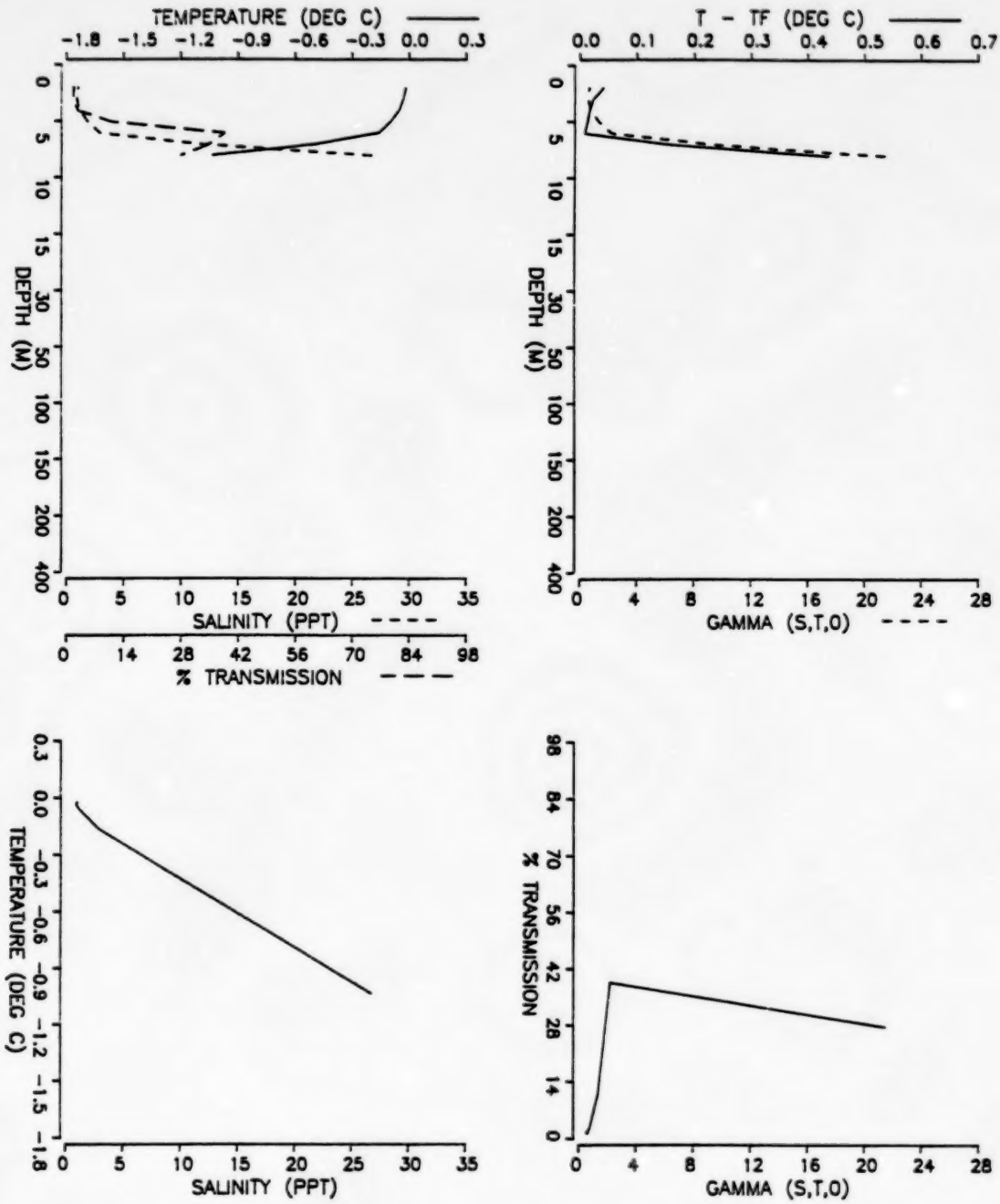
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.11	2.19	2.5	14.71	1.62	0.02	0.26
2.0	-0.08	1.45	1.5	16.82	1.02	0.00	0.52
3.0	0.00	0.29	0.5	20.86	0.08	0.02	0.79
4.0	0.01	0.27	0.3	23.13	0.07	0.03	1.07



STATION X1-4 CAST # 87066 DATE : 15:25 MDT ON 04/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 44.80 N LONG : 132 29.00 W

STATION	LAT	LONG	DATE
X2-4	69 48.4 N	132 30.0 W	15:53 MDT ON 04/06/ 87

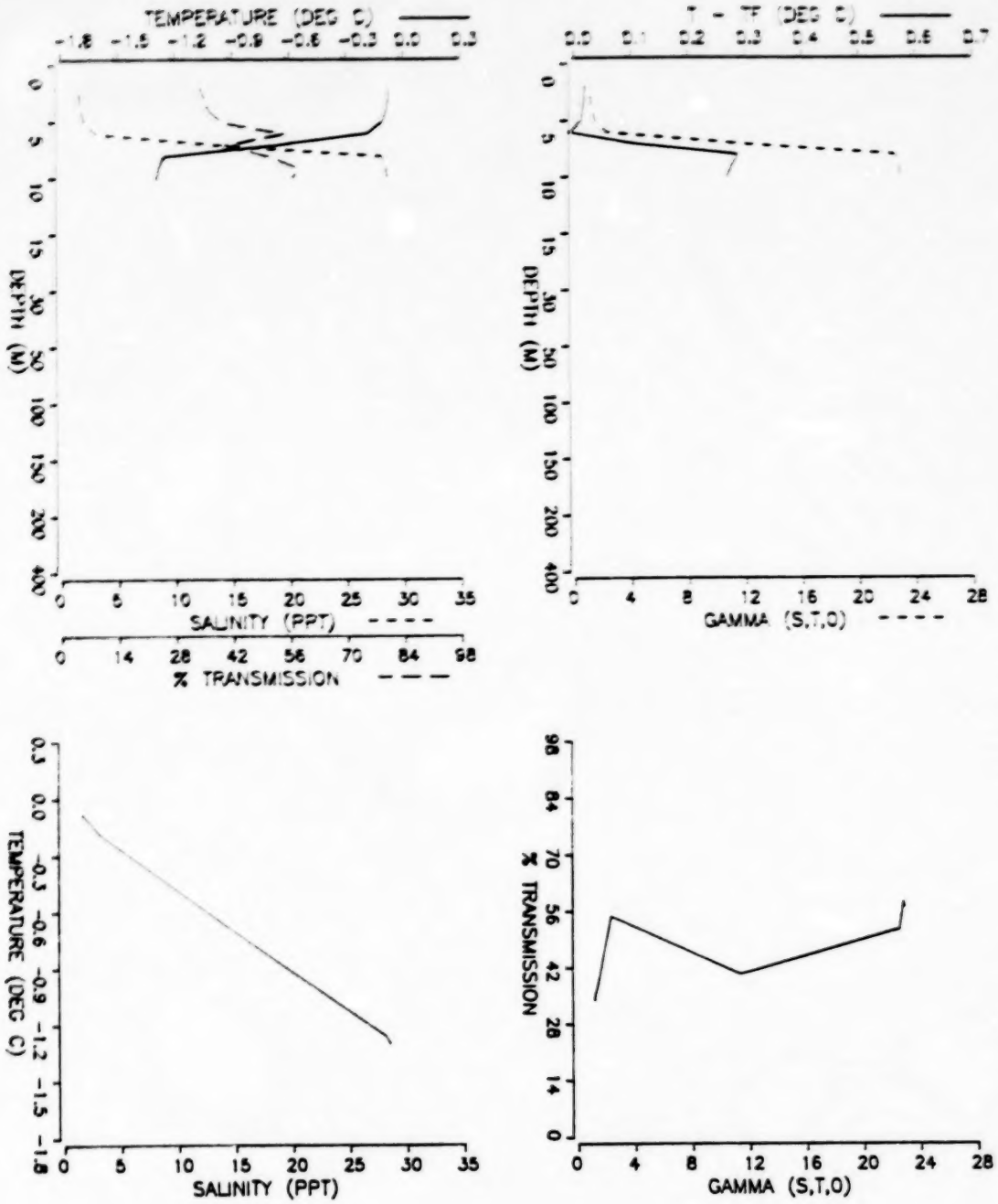
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
2.0	-0.02	1.00	1.7	16.37	0.66	0.04	0.54
3.0	-0.03	0.88	1.6	16.50	0.56	0.02	0.81
4.0	-0.05	1.15	2.7	14.43	0.78	0.02	1.08
5.0	-0.09	1.87	11.2	8.76	1.37	0.01	1.34
6.0	-0.16	2.91	38.8	3.79	2.21	0.01	1.60
7.0	-0.49	11.88	34.7	4.24	9.46	0.16	1.82
8.0	-1.03	26.91	27.8	5.12	21.60	0.44	1.94



STATION X2-4 CAST # 87067 DATE : 15:53 MDT ON 04/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 48.40 N LONG : 132 30.00 W

STATION	LAT	LONG	DATE
X3-4	69 50.7 N	132 30.3 W	16:11 MDT ON 04/06/ 87

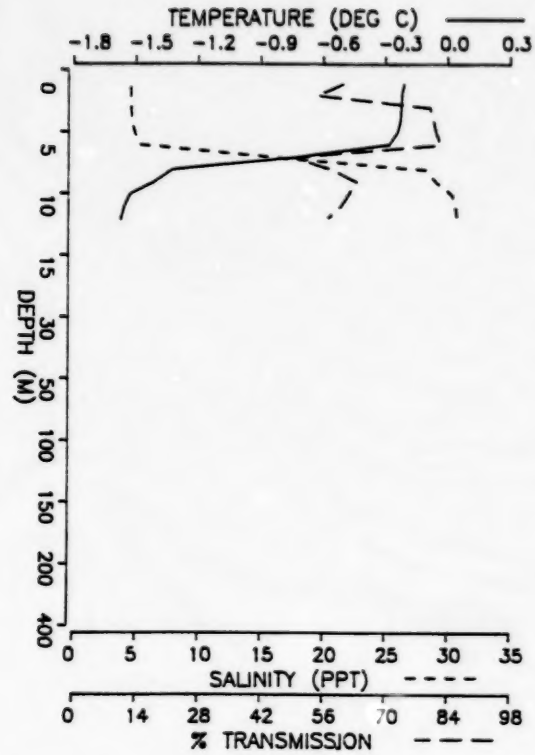
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
2.0	-0.07	1.65	34.3	4.28	1.19	0.02	0.53
3.0	-0.08	1.66	35.5	4.15	1.20	0.02	0.79
4.0	-0.09	1.77	36.5	4.03	1.28	0.02	1.06
5.0	-0.11	2.07	39.8	3.68	1.53	0.01	1.32
6.0	-0.18	3.10	54.9	2.40	2.36	0.00	1.57
7.0	-0.67	14.35	40.5	3.61	11.45	0.11	1.78
8.0	-1.25	28.15	51.5	2.65	22.61	0.29	1.89
9.0	-1.28	28.49	58.3	2.16	22.88	0.28	1.94
10.0	-1.30	28.59	57.1	2.24	22.96	0.27	1.99

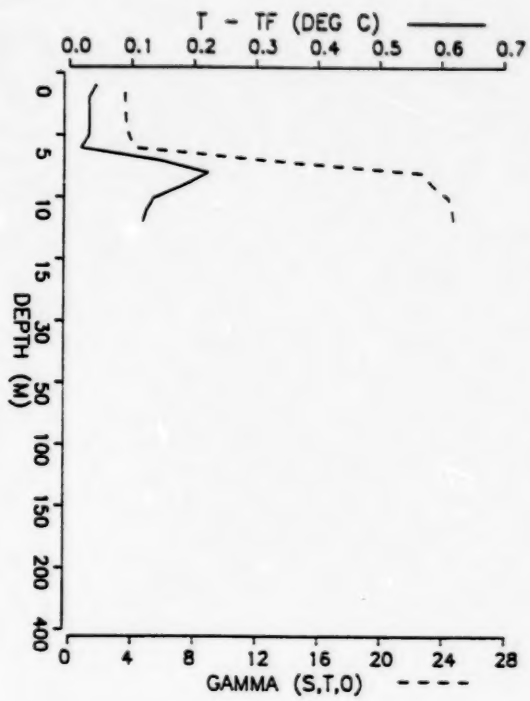


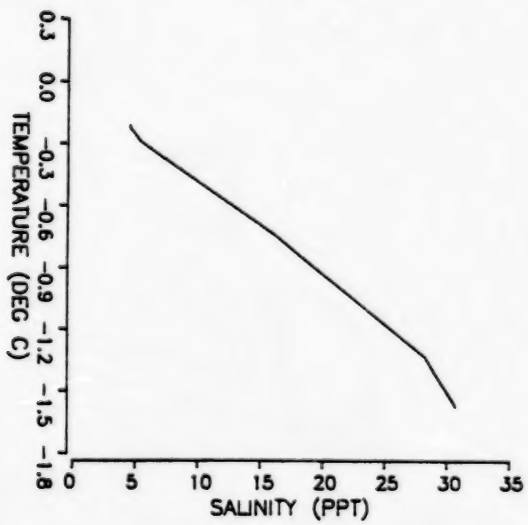
STATION X3-4 CAST # 87068 DATE : 16:11 MDT ON 04/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 50.70 N LONG : 132 30.30 W

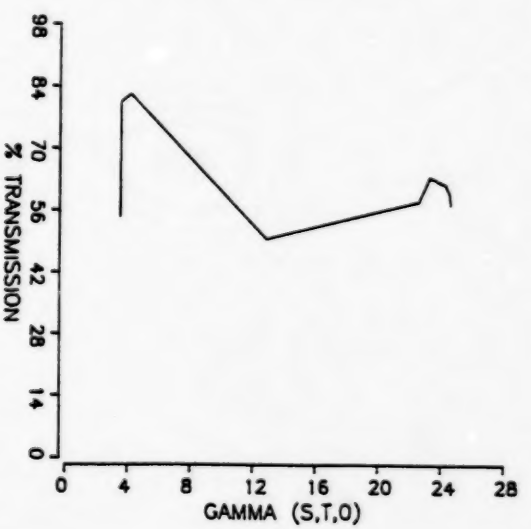
STATION	LAT	LONG	DATE
X4-4	69 55.1 N	132 32.4 W	16:31 MDT ON 04/06/ 87

DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.21	4.55	61.1	1.97	3.54	0.04	0.24
2.0	-0.22	4.57	54.6	2.42	3.55	0.03	0.48
3.0	-0.22	4.59	80.0	0.89	3.57	0.03	0.72
4.0	-0.23	4.64	80.7	0.86	3.61	0.03	0.96
5.0	-0.24	4.90	81.3	0.83	3.82	0.03	1.20
6.0	-0.28	5.39	82.3	0.78	4.22	0.02	1.44
7.0	-0.74	16.21	49.5	2.81	12.95	0.15	1.63
8.0	-1.32	28.25	58.0	2.18	22.69	0.22	1.73
9.0	-1.41	29.13	63.6	1.81	23.40	0.18	1.77
10.0	-1.53	30.35	61.8	1.93	24.40	0.13	1.81
12.0	-1.57	30.77	57.0	2.25	24.74	0.12	1.88





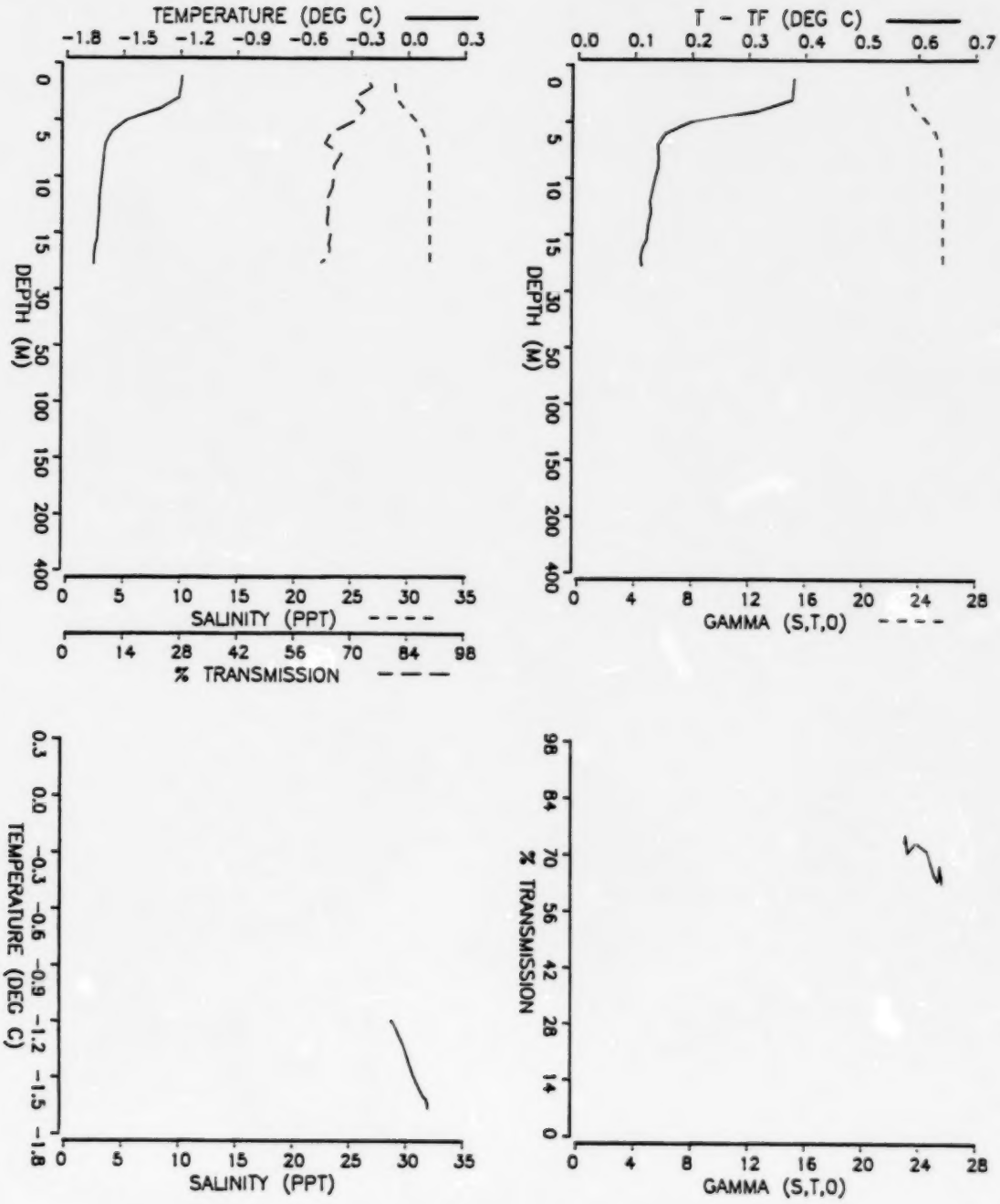




STATION X4-4 CAST # 87069 DATE : 16:31 MDT ON 04/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 55.10 N LONG : 132 32.40 W

STATION	LAT	LONG	DATE
X5-4	70 4.9 N	132 28.3 W	16:55 MDT ON 04/06/ 87

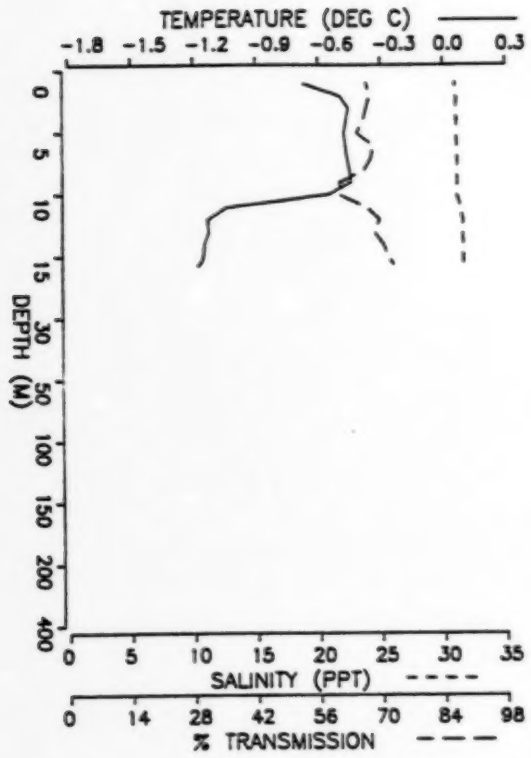
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-1.19	28.80	73.3	1.24	23.14	0.38	0.05
2.0	-1.20	28.88	75.1	1.15	23.20	0.38	0.10
3.0	-1.21	29.01	70.6	1.39	23.31	0.38	0.14
4.0	-1.31	29.77	73.2	1.25	23.92	0.32	0.18
5.0	-1.49	30.72	71.2	1.36	24.70	0.20	0.22
6.0	-1.56	31.31	65.3	1.70	25.18	0.15	0.25
7.0	-1.60	31.66	63.6	1.81	25.46	0.14	0.28
8.0	-1.61	31.82	67.6	1.57	25.59	0.14	0.30
9.0	-1.61	31.88	65.9	1.67	25.64	0.14	0.33
10.0	-1.62	31.89	65.8	1.68	25.65	0.14	0.35
12.0	-1.63	31.93	64.2	1.77	25.68	0.13	0.40
14.0	-1.63	31.95	64.2	1.77	25.70	0.12	0.44
16.0	-1.64	31.96	65.0	1.72	25.70	0.12	0.49
18.0	-1.65	31.97	64.6	1.75	25.72	0.11	0.54
20.0	-1.65	31.98	64.8	1.73	25.73	0.11	0.58
22.0	-1.66	31.99	63.7	1.80	25.73	0.11	0.63
23.0	-1.66	31.99	62.7	1.87	25.73	0.11	0.65

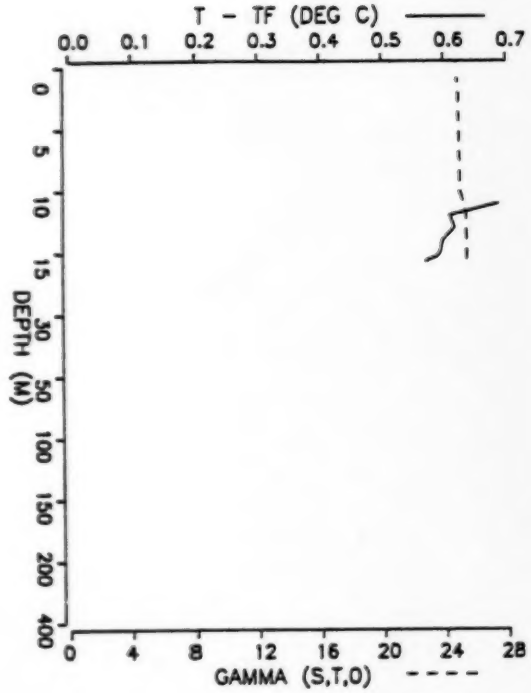


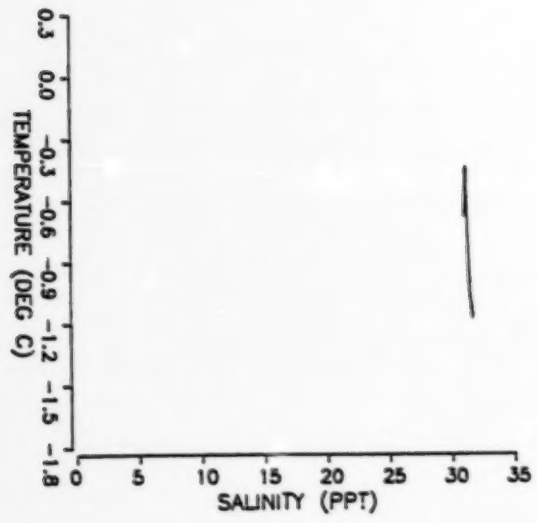
STATION X5-4 CAST # 87070 DATE : 16:55 MDT ON 04/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 70 4.90 N LONG : 132 28.30 W

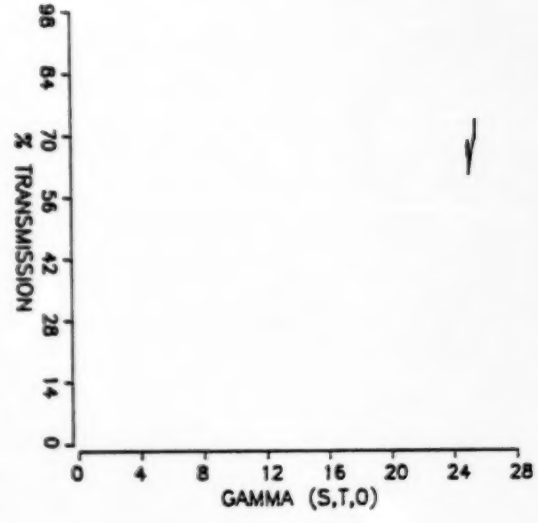
STATION	LAT	LONG	DATE
X6-4	70 14.7 N	132 19.8 W	17:09 MDT ON 04/06/ 87

DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.67	31.00	66.9	1.61	24.91	1.02	0.03
2.0	-0.50	31.12	67.7	1.56	24.99	1.21	0.06
3.0	-0.45	31.10	66.9	1.61	24.98	1.25	0.09
4.0	-0.46	31.11	66.2	1.65	24.99	1.24	0.12
5.0	-0.47	31.12	64.9	1.73	24.99	1.23	0.15
6.0	-0.47	31.14	68.5	1.51	25.01	1.24	0.18
7.0	-0.46	31.17	68.0	1.54	25.03	1.25	0.21
8.0	-0.45	31.19	66.5	1.63	25.05	1.26	0.24
9.0	-0.44	31.18	60.9	1.98	25.04	1.27	0.27
10.0	-0.54	31.17	61.0	1.97	25.03	1.17	0.30
12.0	-1.13	31.63	70.0	1.43	25.43	0.61	0.35
14.0	-1.14	31.66	70.9	1.38	25.45	0.60	0.40
16.0	-1.16	31.67	72.6	1.28	25.46	0.59	0.45
17.0	-1.17	31.67	73.2	1.25	25.46	0.57	0.48





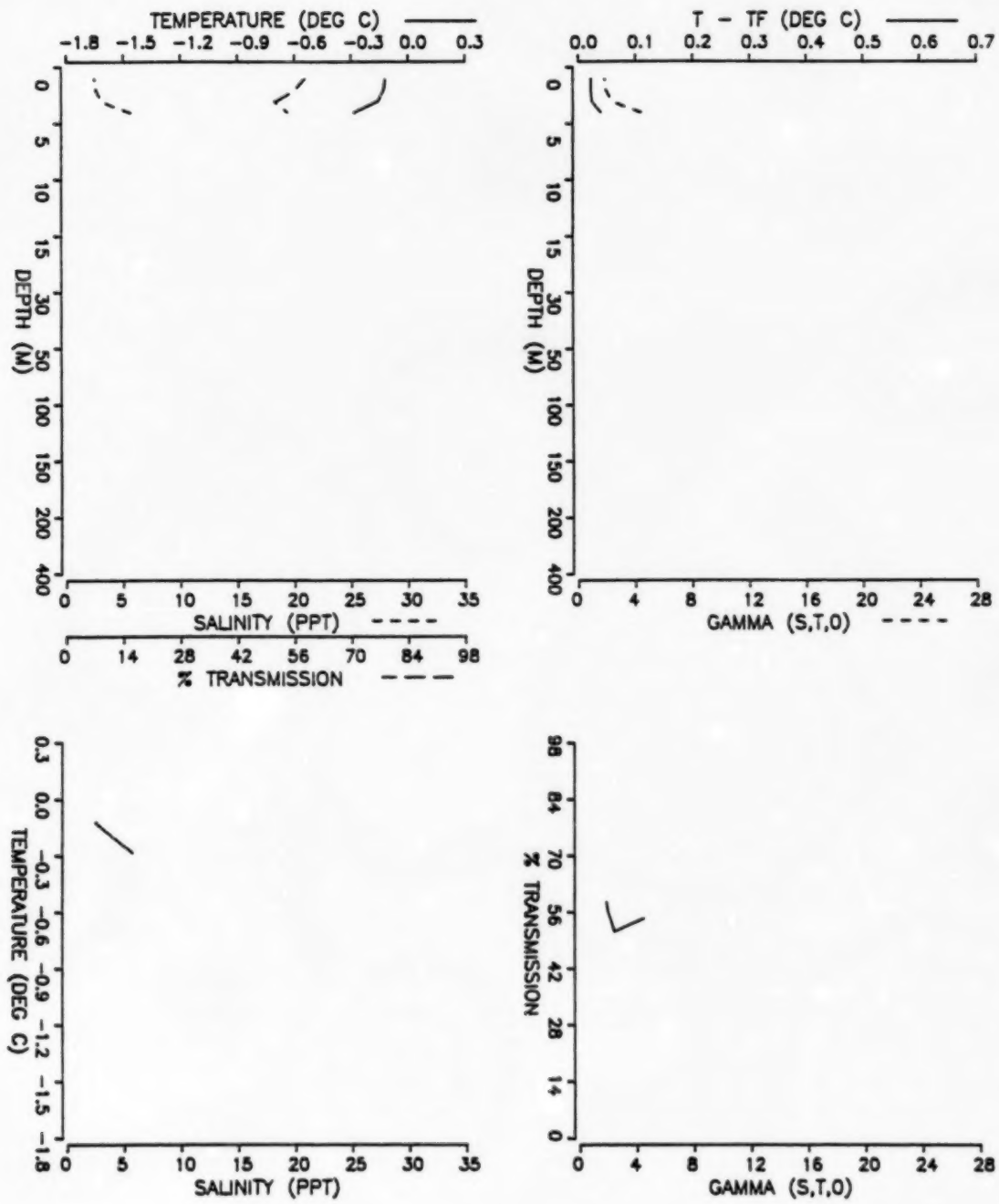




STATION X6-4 CAST # 87071 DATE : 17:09 MDT ON 04/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 70 14.70 N LONG : 132 19.80 W

STATION	LAT	LONG	DATE
Y1-4	69 57.0 N	131 27.4 W	11:22 MDT ON 04/06/ 87

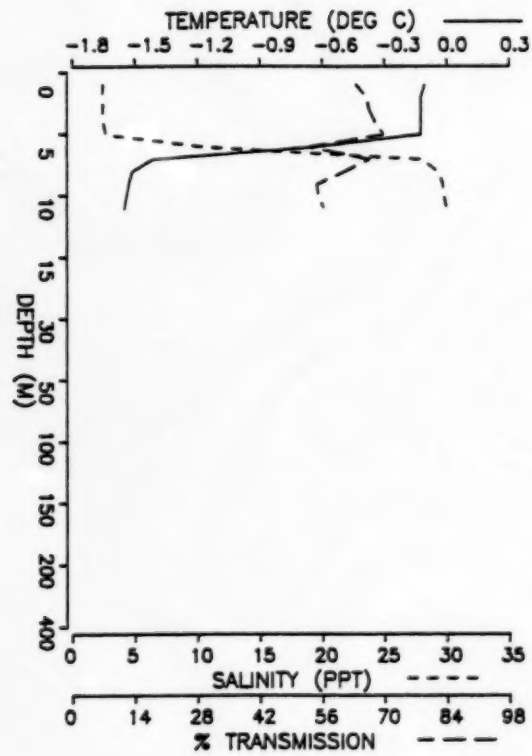
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.12	2.50	58.7	2.13	1.88	0.02	0.26
2.0	-0.12	2.63	56.2	2.31	1.98	0.02	0.51
3.0	-0.15	3.20	51.4	2.66	2.45	0.02	0.77
4.0	-0.28	5.82	54.7	2.41	4.57	0.04	1.01

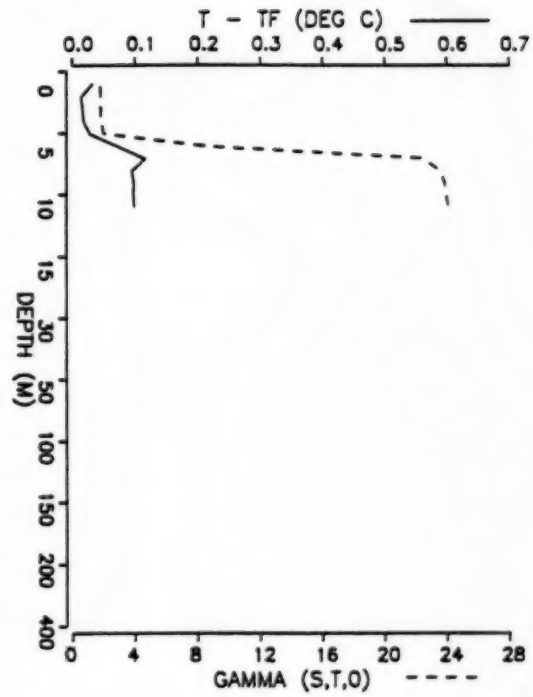


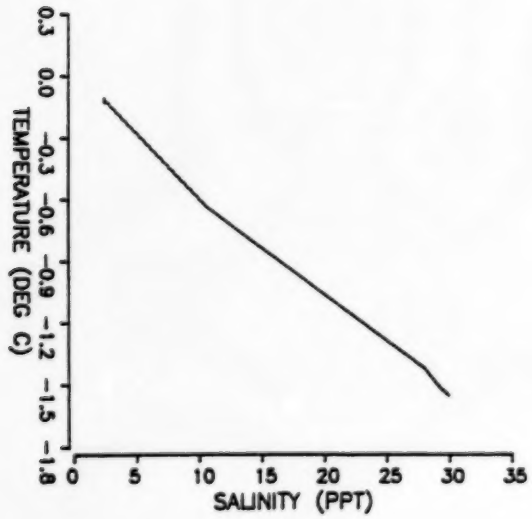
STATION Y1-4 CAST # 87072 DATE : 11:22 MDT ON 04/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 69 57.00 N LONG : 131 27.40 W

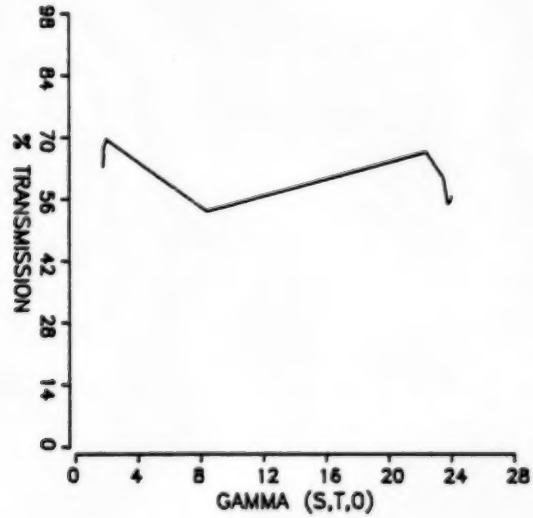
STATION	LAT	LONG	DATE
Y2-4	70 1.0 N	131 32.2 W	11:51 MDT ON 04/06/ 87

DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.10	2.43	63.8	1.80	1.82	0.03	0.26
2.0	-0.12	2.43	66.2	1.65	1.82	0.01	0.52
3.0	-0.12	2.44	66.6	1.63	1.83	0.02	0.77
4.0	-0.12	2.46	67.9	1.55	1.85	0.02	1.03
5.0	-0.12	2.67	69.7	1.44	2.01	0.03	1.29
6.0	-0.63	10.66	53.3	2.52	8.46	-0.05	1.51
7.0	-1.41	28.02	66.7	1.62	22.50	0.12	1.63
8.0	-1.51	29.36	61.0	1.97	23.59	0.10	1.68
9.0	-1.53	29.71	54.9	2.40	23.88	0.10	1.72
10.0	-1.54	29.84	55.4	2.37	23.98	0.10	1.76
11.0	-1.55	30.05	56.6	2.27	24.15	0.10	1.80





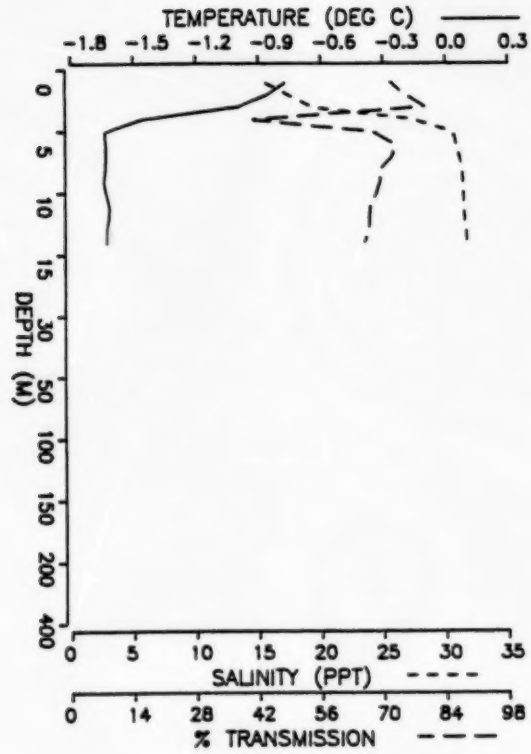


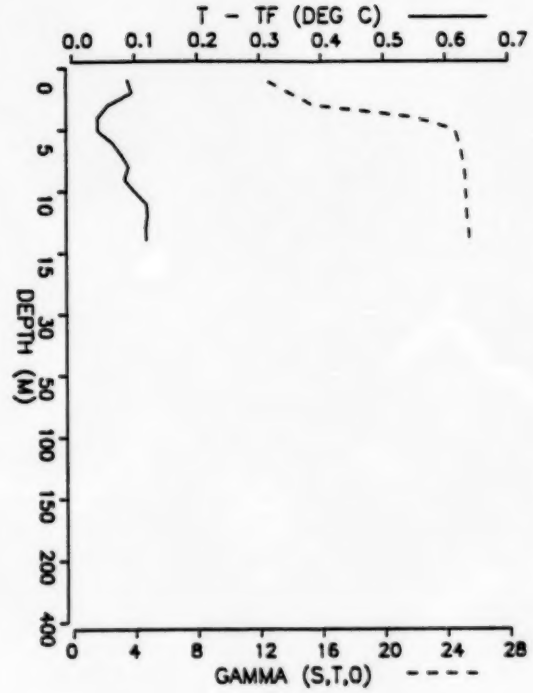


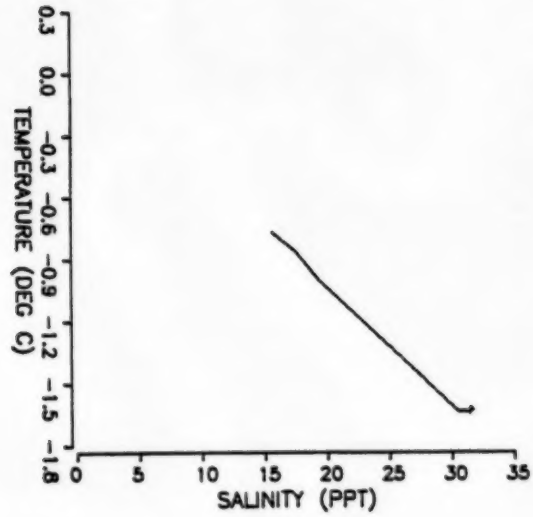
STATION Y2-4 CAST # 87073 DATE : 11:51 MDT ON 04/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 70 1.00 N LONG : 131 32.20 W

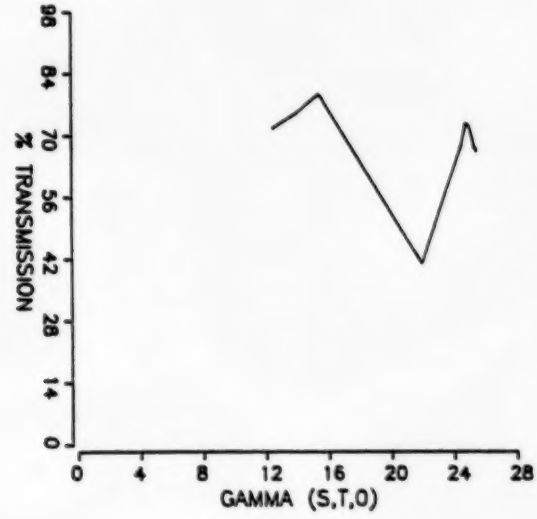
STATION	LAT	LONG	DATE
Y3-4	70 5.0 N	131 36.8 W	12:13 MDT ON 04/06/ 87

DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.76	15.71	71.8	1.33	12.55	0.09	0.15
2.0	-0.85	17.51	75.0	1.15	14.00	0.10	0.29
3.0	-0.99	19.39	79.4	0.92	15.52	0.06	0.42
4.0	-1.45	27.43	41.0	3.57	22.02	0.04	0.51
5.0	-1.63	30.61	67.8	1.56	24.61	0.04	0.56
6.0	-1.63	30.93	72.7	1.28	24.87	0.06	0.59
7.0	-1.63	31.16	72.3	1.30	25.06	0.08	0.62
8.0	-1.63	31.40	69.7	1.45	25.25	0.09	0.65
9.0	-1.64	31.43	69.5	1.45	25.27	0.08	0.68
10.0	-1.63	31.49	68.7	1.50	25.32	0.10	0.71
12.0	-1.61	31.57	67.1	1.60	25.38	0.12	0.76
14.0	-1.63	31.74	66.1	1.66	25.53	0.12	0.81





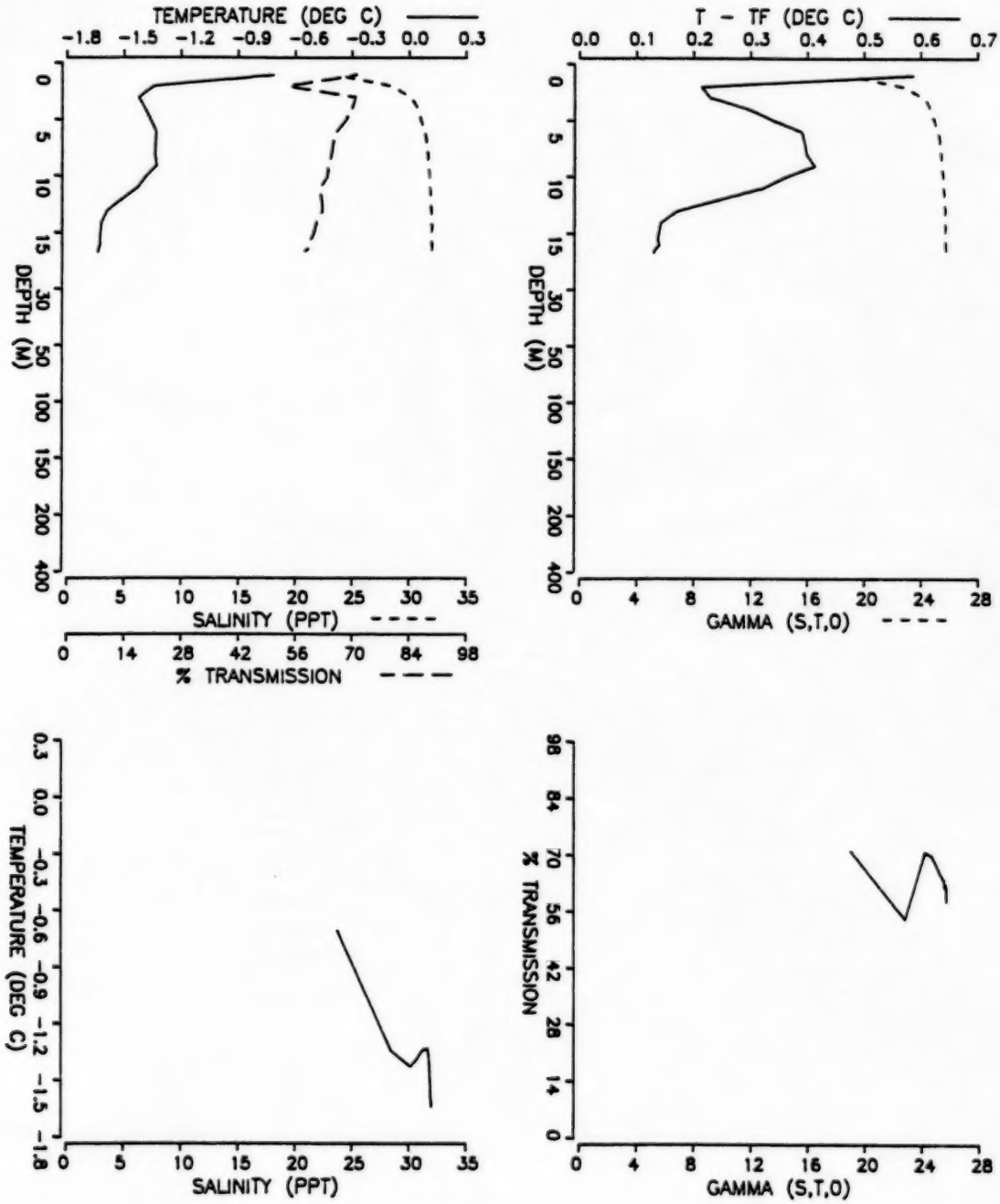




STATION Y3-4 CAST # 87074 DATE : 12:13 MDT ON 04/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 70 5.00 N LONG : 131 36.80 W

STATION	LAT	LONG	DATE
Y4-4	70 9.1 N	131 20.0 W	12:41 MDT ON 04/06/ 87

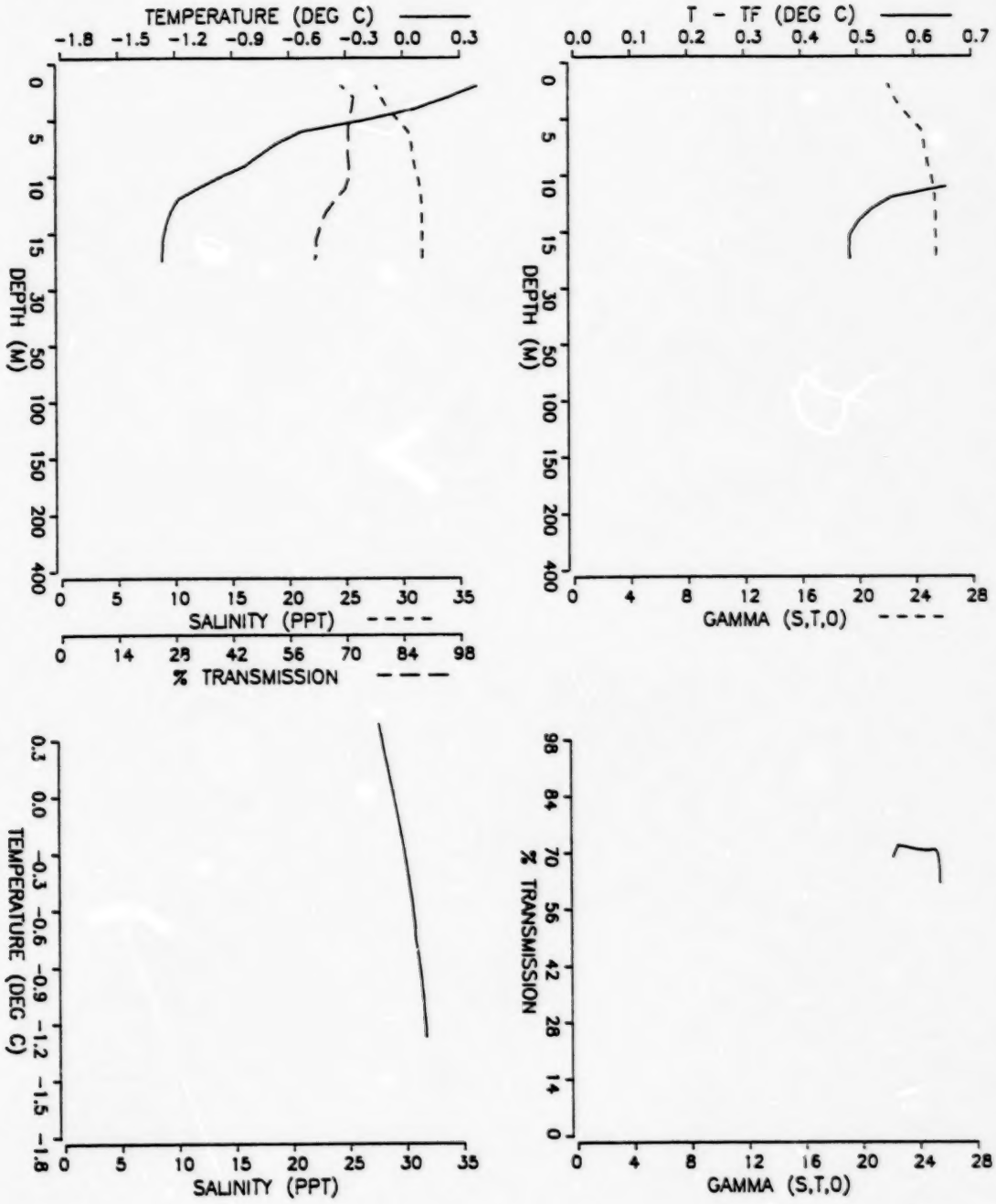
DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
1.0	-0.71	23.85	71.1	1.36	19.12	0.59	0.09
2.0	-1.34	28.50	54.3	2.44	22.90	0.21	0.15
3.0	-1.42	30.22	70.9	1.38	24.29	0.23	0.20
4.0	-1.39	30.76	70.0	1.43	24.72	0.30	0.23
5.0	-1.36	31.05	68.4	1.52	24.96	0.34	0.26
6.0	-1.33	31.39	66.3	1.64	25.24	0.39	0.29
7.0	-1.33	31.53	65.4	1.70	25.35	0.40	0.32
8.0	-1.34	31.64	65.0	1.72	25.44	0.40	0.35
9.0	-1.33	31.71	64.2	1.77	25.50	0.41	0.37
10.0	-1.38	31.81	64.0	1.78	25.58	0.36	0.40
12.0	-1.51	31.92	62.6	1.88	25.67	0.25	0.44
14.0	-1.62	32.01	61.4	1.95	25.75	0.14	0.49
16.0	-1.63	32.02	60.2	2.03	25.75	0.14	0.53
18.0	-1.63	32.02	59.8	2.06	25.75	0.14	0.58
20.0	-1.64	32.04	58.3	2.16	25.77	0.13	0.62



STATION Y4-4 CAST # 87075 DATE : 12:41 MDT ON 04/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 70 9.10 N LONG : 131 20.00 W

STATION	LAT	LONG	DATE
Y5-4	70 14.3 N	131 46.6 W	13:06 MDT ON 04/06/ 87

DEPTH	TEMP	SALN	TRNS	ATTN	SIGT	T-Tf	DYN HT
2.0	0.39	27.72	69.1	1.48	22.22	1.90	0.11
3.0	0.24	28.17	72.0	1.31	22.58	1.78	0.17
4.0	0.07	28.79	71.6	1.34	23.10	1.64	0.22
5.0	-0.21	29.67	70.9	1.37	23.82	1.42	0.26
6.0	-0.54	30.53	70.7	1.39	24.52	1.14	0.30
7.0	-0.66	30.75	70.7	1.38	24.70	1.03	0.33
8.0	-0.74	30.85	70.5	1.40	24.78	0.95	0.37
9.0	-0.83	31.06	70.9	1.38	24.95	0.88	0.40
10.0	-0.96	31.34	70.9	1.38	25.19	0.76	0.43
12.0	-1.18	31.64	67.6	1.57	25.43	0.56	0.48
14.0	-1.24	31.69	64.0	1.79	25.48	0.50	0.53
16.0	-1.26	31.70	62.9	1.85	25.49	0.49	0.58
18.0	-1.26	31.71	62.8	1.86	25.49	0.49	0.63
20.0	-1.26	31.71	62.7	1.86	25.50	0.49	0.68
22.0	-1.26	31.71	62.3	1.89	25.50	0.49	0.73



STATION Y5-4 CAST # 87065 DATE : 13:06 MDT ON 04/06/ 87
WATER DEPTH UNKNOWN INSTRUMENT : APPL MICROSYS CTD
LAT : 70 14.30 N LONG : 131 46.60 W

NOGAP B.6 Data Reports in the Canadian Data Report of Hydrography and Ocean Sciences Series

Macdonald, R.W., K. Iseki, E.C. Carmack, D.M. Macdonald, M.C. O'Brien, and F.A. McLaughlin, 1988. Data Report: NOGAP B.6; Beaufort Sea Oceanography, September, 1986. *Can. Data Rep. Hydrogr. Ocean Sci.:* **58**, 68pp.

Cuypers, L.E., A.W. Blaskovich, E.C. Carmack, and R.W. Macdonald, 1988. NOGAP B.6; Physical data collected in the Beaufort Sea, September, 1986. *Can. Data Rep. Hydrogr. Ocean Sci.:* **59**, 149pp.

McCullough, D., R.W. Macdonald, K. Iseki, and E.C. Carmack, 1988. NOGAP B.6; Volume 1: Beaufort Sea current measurements, March-August 1987. *Can. Data Rep. Hydrogr. Ocean Sci.:* **60(1)**, 42pp.